Good to Eat, Good to Live with: Nomads and Animals in Northern Eurasia and Africa

Edited by

Florian Stammler
Arctic Centre, University of Lapland, Finland &
Scott Polar Research Institute, University of Cambridge, UK

Hiroki Takakura
Center for Northeast Asian Studies,
Tohoku University, Japan

University of Lapland

2020

Published by University of Lapland, 2020

Good to Eat, Good to Live with:
Nomads and Animals in Northern Eurasia and Africa /
edited by Florian Stammler, Hiroki Takakura

xiii + 243 p. ; maps, ill. ; 25.7 cm
includes bibliographical references

Internationally peer-reviewed publication

Originally published in 2010 by
Center for Northeast Asian Studies,
Tohoku Univeristy, Japan
as Northeast Asian Study Series, no. 11
ISBN 978-4-901449-67-0 (hard book)

Republished as 2nd unaltered edition in 2020
by University of Lapland
ISBN 978-952-337-218-4 (pdf.)

LCSH:
Ethnology—Africa
Ethnology—Asia, Central
Arctic Peoples—Social life and customs
Cattle
Reindeer farming
Human animal relationships

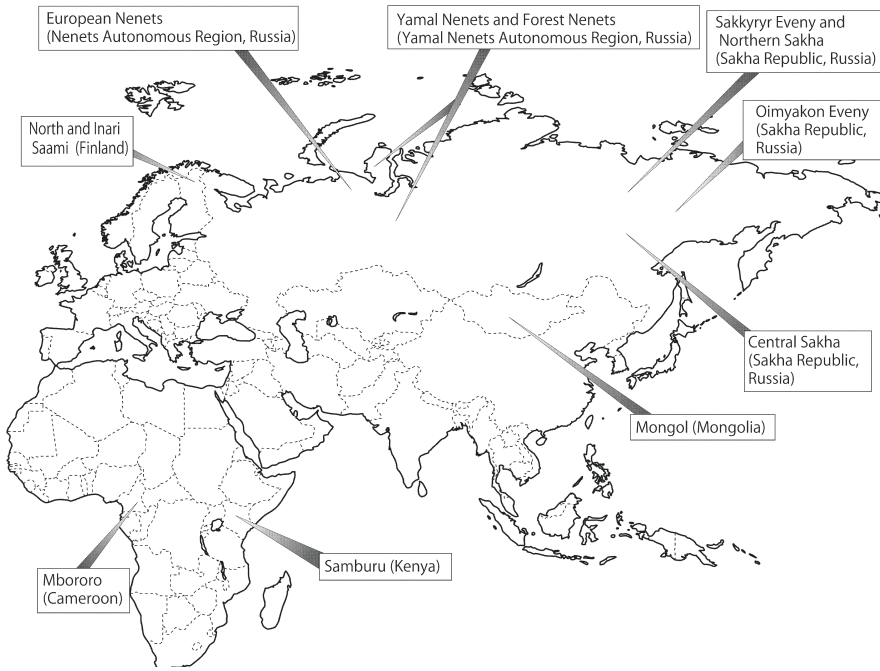
CONTENTS

Global significance of local animal species for humanity

Conclusion: comparison from the Arctic

ACKNOWLEDGEMENTS

This publication benefited in various forms from the support of the BOREAS Eurocores Program of the European Science Foundation (ESF), the Academy of Finland, and Arctic Centre of University Lapland. We also express our sincere gratitude to the Japanese Society of the Promotion of Science (JSPS), the Siberian Research Project programmed by Research Institute of Humanity and Nature (RIHN, Japan), and Center for Northeast Asian Studies of Tohoku University.



Field sites covered in this volume

LIST OF CONTRIBUTORS

*editors of this volume

Granberg, Leo is a professor of rural studies in social sciences at the University of Helsinki, Department of Social Psychology and Ruralia Institute. He is sociologist and has studied social change in rural areas in Finland, eastern Europe, and Russia. His focus since 2004 has been the study of endangered Yakutian Cattle and three northern Siberian villages where these cattle have survived. He has co-published, among others, the following books: Leo Granberg, Katriina Soini & Juha Kantanen (eds. 2009), *Sakha Ynaga. Cattle of the Yakuts*. Finnish Academy of Science and Letters. Maarit Heinonen, Jouko Nikula, Inna Kopoteva & Leo Granberg (eds. 2007), *Reflecting Transformation in Post-socialist Rural Areas*. Cambridge Scholars Publishing. Leo Granberg, Imre Kovách & Hilary Tovey (2001), *Europe's Green Ring*. Ashgate. e-mail leo.granberg(at)helsinki.fi

Kantanen, Juha is a Head of the Farm Animal Section of the Nordic Genetic Resource Centre (NordGen) and a principal researcher in animal genetics at Agrifood Research, Finland (MTT). His studies at MTT have focused on molecular genetic diversity in domesticated animals, especially in domestic cattle and sheep, their domestication history, current genetic diversity, and conservation of their genetic resources. He has participated in two multidisciplinary studies on the genetic, socio-cultural, and economic valuation of endangered native farm animal breeds, such as Yakutian Cattle. He has coordinated the Finnish national conservation action plan for animal genetic resources and is currently working at NordGen to promote gene resource conservation in Nordic countries. Email juha.kantanen(at)nordgen.org or juha.kantanen(at)mtt.fi, web http://www.nordgen.org/index.php/en/content/view/full/2/ or www.mtt.fi/english

Konaka, Shinya is a Japanese scholar of African studies and anthropology. He has been conducting field research among East African pastoralists since 1990, primarily among the Samburu pastoralists in north central Kenya. His main concern is the globalization of African societies as seen through the investigation of micro-level phenomena. His ethnography on the Samburu won the Okita Memorial Prize for International Development Research. He is an associate professor at the Faculty of International Relations, University of Shizuoka, as well as a researcher of Center for Global Studies, Graduate School of International Relations, University of Shizuoka (Japan). Email konaka(at)u-shizuoka-ken.ac.jp, web http://africa.u-shizuoka-ken.ac.jp/

Mazzullo, Nuccio is a researcher at Leibniz-Institut für Länderkunde in Leipzig, Germany, and a research fellow of the Anthropology research team at the Arctic Centre, University of Lapland, in Rovaniemi. He has studied at the University of Manchester, UK, where he completed his Ph.D. in social anthropology. His topical interests include reindeer herding, hunting and gathering, human-environment relationships, environmental politics, and indigenous rights. Dr. Mazzullo's other interests related to circumpolar peoples are landscape and perception, learning and skills, handicraft and narratives, and anthropology. His recent

publications include an article co-authored with Tim Ingold, Being Along: Place, Time and Movement among Sámi People (2008), in *Mobility and Place: Enacting European Peripheries*, (eds) J.O. Bærenholdt and B. Granås, Ashgate, and (2009) Sápmi: A symbolic re-appropriation of Lapland as Saamiland, in Máttut Máddagat. *The Roots of Saami Ethnicities, Societies and Spaces/Places*, T. Äikäs (ed.), Publication of Giellagas Institute, University of Oulu. E-mail: N_Mazzullo(at)ifl-leipzig.de

Nakamura, Tomoko is a social anthropologist who has focused on social change in Mongolia and Western China. She is most familiar with China's western development strategy and has travelled around the Heihe river basin for her fieldwork. Dr. Nakamura is also interested in the relationship between horses and pastoral people in Mongolia, which is reflected in her publications on ecological immigration, the culture of horses in Mongolian pastoral society, and the history of Chinese frontier areas. Dr. Nakamura is a post-doctoral researcher at CNEAS and a part-time lecturer at Tokyo Gakugei University and Ibaraki Christian University. E-mail fwjh1030(at)nifty.com

Osva, Anu (Licentiate of Science [Agriculture and Forestry]) is a Finnish artist with scientific background in animal breeding (i.e. genomics, quantitative genetics and mathematics). She worked ten years as a researcher in this field, but chose to pursue an artistic career in 1990. In 1999 she began to combine scientific thinking and observations into her artistic work. In her paintings layers of genetic information are mixed with random layers of oil colors. These layers of color may contain natural, historical or cultural observations, or they may be related to our belief systems. One of Ms. Osva's recent works is a project entitled *Yakutian cattle – A Research Expedition to Siberia in 2000's*. She participated in a field trip to North-East Siberia together with a research team from Helsinki University. http://www.pp.htv.fi/aosva/

Sasaki, Shiro is a professor at the National Museum of Ethnology in Osaka. He received his Ph.D. in cultural anthropology at the University of Tokyo in 1989. Since 1984 he has carried out field studies among the Saami in northern Finland, Evenks in northern China, Nenets in the Nenets Autonomous District, Evens in northern Yakutia (Republic of Sakha), and indigenous minorities (Nanai, Ul'chi, Udehe, and Nivkh) in the Russian Far East. His main research themes are concerned with the social history of the people of the Amur River basin in the 17th–20th centuries and the cultural problems facing reindeer-herders and hunter-gatherers in Siberia during the Post Soviet transformation.

Stammler, Florian* is a social anthropologist who has worked on the study of human-animal relations in pastoralism since 1995. He has lived among and is most familiar with the Nenets reindeer herders on both sides of the Ural Mountains, but he has also worked and travelled in other regions of the circumpolar North. Dr. Stammler has always been convinced that research from the North can contribute to general anthropological debates, and this is reflected in his publications on reindeer herding, industrial northern livelihood, and the impact of the extractive industry. Dr. Stammler was a visiting Associate Professor at CNEAS in 2009 and is the coordinator of the Anthropology Research Team at the Arctic Centre, University of Lapland, as well as Institute Associate at the Scott Polar Research Institute, University of Cambridge. email fms36(at)cam.ac.uk, web www.arcticcentre.org/anthropology

Stammler-Gossmann, Anna is a researcher for the Anthropology Research Team (www.arcticcentre.org/anthropology) in the 'Sustainable Development' Group at the Arctic Centre (University of Lapland, Rovaniemi, Finland). Her main interests are local community adaptation and vulnerability to social and environmental changes; the concept of the North in politics, economics, and culture; and indigenous and non-indigenous identities. Her research sites are in different parts of Fennoscandia and the Russian North. Dr. Stammler-Gossmann has been conducting fieldwork in the Republic of Sakha Yakutia since 1997. E-mail: astammle(at)ulapland.fi

Takakura, Hiroki* is a social anthropologist whose main concerns are human-animal relationships, post-socialist socio-cultural transformation, and indigenous affairs and anthropology. His research topics include the subsistence transition of Siberian indigenous peoples; the ethno-history of Maritime Northeast Asian minority and indigenous affairs in Japan, Russia, and China; and the history of anthropology in Japan and Russia. He has been engaged in fieldwork in Sakha Republic and the Russian Far East since 1992. Dr. Takakura was a visiting scholar at the Scott Polar Research Institute, University of Cambridge in 2003–2004 and is Associate Professor at Center for Northeast Asian Studies, Tohoku University. E-mail hrk(at)m.tains.tohoku.ac.jp

Virtanen, Tea is an anthropologist from Finland specialising in Mbororo culture (Cameroon) since 1994. Her dissertation (2003) from the University of Helsinki is a classical ethnography of kinship, gender, cattle, identity and migration of a semi-nomadic pastoral people. Having worked earlier as a lecturer and a researcher at the University of Helsinki and at the University of Joensuu, Virtanen now holds a post as a Nordic researcher (Finland) at the Nordic Africa Institute in Uppsala, Sweden. E-mail: tea.virtanen@nai.uu.se.

Vuojala-Magga, Terhi is an anthropologist and in the Anthropology Research Team at Arctic Centre, University Lapland, and a reindeer herder. During 2007–2009 she worked at the Arctic Centre in the projects of Fin-Caviar (Community Adaptation and Vulnerability in the Arctic Regions) (International Polar Year 2007) and ECO-Rein (the Ecological and Socioeconomical responses of Global Change on Reindeer Pastures) (University of Oulu/Arctic Centre). She is submitting her Ph.D. dissertation on Saami reindeer herding and climatic change to the University of Oulu in Spring 2010. She has done fieldwork both in Siberia among Khanty reindeer herders and in Finnish Saapmi among Saami reindeer herders. She is studying the concepts of tacit knowledge as well as skills and situated learning. Her goal is to investigate more deeply the philosophy of residents of artic regions. E-mail: vuojala-magga(at)suomi24.fi

GREETINGS FROM THE FIELD TO THE CONTRIBUTORS

Dear friends and colleagues.
Many greetings to you from Sakkyryr [Eveno-Bytantay district, Sakha Republic, East Siberia]. I congratulate you and all colleagues whom I don't know personally and everybody at your conference for the beginning of this interesting work on the study of such an interesting socio-economic topic among all peoples engaging in animal husbandry and leading a way of life and subsistence that is traditional for ancient ethnic groups. I think that questions of herding are still understudied and therefore bear a big scientific potential for researchers. Herding is an ancient profession with a big significance for the evolution of humans and forms an integral part of human cultural development. I think that all herding peoples are very close to each other in their practical work, and they can communicate on some questions of their profession almost without the help of dictionaries.
I wish all participants a productive work and broadening of scientific studies to all those places in the world where humans engage with the animal-world in one way or the other.
Particular greetings to all of those with whom I had the honour to meet.
I wish all of you a blessed life and creative success in your academic work.
Respectfully to all participants of this academic forum.
Innokentii Alexeevich Ammosov, May 13, 2009

Здравствуйте дорогие друзья-коллеги.
Привет вам из Саккырыра! Поздровляю вас и ваших коллег с которыми я не знаком и всех присутствующих в конференции с началом интересной работы по изучению такой интересной социально-экономической темы всех народов которые занимаются животноводством и ведут традиционный для древних этносов образ жизни и жизнеобеспечения. Мне кажется вопросы пастушества в настоящее время мало изучены и представляют большой научный интерес для изучающих. Пастушество – древнейшее профессия которая имело большое значение для эволюции человека и как целостная часть развития человеческой культуры. Мне кажется все пастушеские народы по своей работе очень близки и по некоторым вопросам своей специальности они могут общаться почти без словоря. Желаю всем участникам продуктивной работы и расширения научных изысканий по всему миру где человек так или иначе общается с животным миром. Привет всем с кем я имел честь знакомится. Желаю вам всем жизненных благ и творческих успехов в вашей научной деятельности.
С уважением всем участникам научного форума, Иннокентий.

PREFACE

The social significance of animals has been at the heart of some of modern anthropology's most influential contributions, from the seminal works by Evans-Pritchard, Herskovits' *Cattle Complex in East Africa*, Rappaport's *Pigs for the Ancestors*, Itani's theory of the evolution of social structure, from a perspective combining primatology with anthropology, and recent interdisciplinary efforts such as Bekoff's four-volume *Encyclopedia of Human-Animal Relations*. Much of the ethnographic record in this direction was produced about nomadic pastoralist societies in different regions, while cross-regional analysis of social significance with theoretical integration was undertaken by fewer studies (Blench, 2001; Ellen & Fukui (eds.), 1996; Galaty & Johnson (eds.), 1990; Ingold, 1980).

The idea for this volume was, therefore, to bring together scholars of pastoralism to focus on the significance that animals have for individuals, societies, and cultures, comparing the situation in the circumpolar North to that of other pastoralist areas. The editors decided to start the process by inviting selected scholars from Japan and Finland to a seminar on the topic organized by the Center for Northeast Asian Studies (CNEAS), Tohoku University, and the Arctic Centre, University of Lapland. The title of the seminar, which was held from May 15 to 18, 2009, in Sendai, Japan was "The Social Significance of Animals in Nomadic Pastoral Societies of the Arctic, Asia, and Africa."

Both the seminar and this book are the outcome of a collaboration between two anthropologists of Siberia and Russian North: Florian Stammler, a visiting associate professor at CNEAS, Tohoku University, in Sendai, Japan from January to July 2009, and Hiroki Takakura, Associate Professor at CNEAS. Presentations by eight researchers each from Finland and Japan formed the basis for discussions during the seminar with 24 participants in total.

The main purpose of the seminar was to compare pastoralism in its contemporary practice in the Arctic, Africa and Central Asia to explore theoretical implications beyond regions. When Takakura and Stammler started fieldwork in Siberia just after the collapse of the Soviet regime, they realized how little was known about the diversity of livelihoods among Arctic pastoralists and how rich the history of African and Central Asian pastoralist studies in ethnography, methodology, and theory was in comparison. Almost two decades of Siberian and northern anthropological field studies are now producing fruitful ethnographical descriptions and advancing novel theories that have placed the North on the map of significant regions for the discipline. While the regional orientation is comparative, this volume, nonetheless, has a strong focus on the North. Indeed, to our knowledge, this is the first volume where scholars of the North take the lead in anthropological analysis in this field and invite other scholars to contribute cases and analysis for general theory building.

One region in East Siberia figures particularly strongly in this volume and presents a useful regional bridge between northern and southern pastoralism. The inte-

grated economy in the area surrounding Sakkyryr (Eveno-Bytantay district, Sakha Republic, East Siberia) unites the use of "southern" animals, such as the horse and the cattle, to the typical northern reindeer pastoralism.

Discussions during the seminar built fruitful academic dialogues between "south" and "north" in studies of pastoralism. While the conceptual axis for the comparison was predominantly the anthropological analysis of human-animal relations, we also include interdisciplinary approaches, such as sociology, biology, and art and science, in order to develop a holistic understanding of social and cultural significance.

The publications that resulted from this cross-regional dialogue incorporate insights from the seminar discussions, where we realized how the topic of the social significance of animals in human-animal relations is focused yet broad enough to provide a useful framework for understanding various aspects of the lives of pastoralists and their neighbors both in historical and contemporary settings.

We adopted a thorough internal peer-review policy on the "single blind" principle; each paper was evaluated by two reviewers, whose identities were unknown to the authors. All papers in this publication, therefore, have been revised at least once. The editors appreciate the effort that the reviewers and authors made to create a volume of great value. We hope that this publication will contribute to further development of the study of this topic and to further international academic dialogues.

We express our profound appreciation for the financial support given by the Japan Society for Promotion of Science and the Academy of Finland. We would also like to thank Dr. Shin-ichiro Ogura, Associate Professor of the Field Science Center, Tohoku University, for the organizing the cultural program "Introduction to the Local Species of Japanese Cattle." Dr. Mutsumi Yamaguchi (Postdoctoral Researcher, CNEAS), Itoe Kaneshiro (Ph.D. candidate, CNEAS), Wakako Shimokakimoto, and Aya Suzuki (both administrative staff members, CNEAS) devoted their energies to the logistics and various arrangements necessary for the seminar and to the preparation of this publication. Without their help this book would not have been so well integrated. We sincerely appreciate their efforts.

Lastly, we wish to express our heartfelt thanks to our friends, the pastoralists in Siberia, Africa, and Mongolia. They show us their generosity and patience when they host us in the field. We always learn from their experience and from their thoughts that are relevant not only to our research but also in our personal lives. Finally, we would like to express our deep gratitude to our common friend, Innokenti Ammosov, a researcher of animal husbandry (Ph.D.) and an administrator of Sakkyryr (Batagay-Alyta) in the Sakha Republic of Russia, who shares our dedication to the study of nomadic livelihoods and whose special greeting to our conference is printed in this volume.

Hiroki Takakura
Center for Northeast Asian Studies, Tohoku University, Japan

Florian Stammler
Arctic Centre, University of Lapland, Finland &
Scott Polar Research Institute, University of Cambridge, UK

REFERENCES

Bekoff, M. (ed.)
2008 *Encyclopedia of Human-Animal Relationships*. Four volumes. Westport, Conn.: Greenwood Publishers.

Blench, R.
2006 Pastoralism in the New Millennium. Updated version of the 2001 FAO, Animal Production and Health Paper 150. http://www.rogerblench.info/Development/Pastoralism%20monograph.pdf (Accessed 8 December 2009).

Ellen, R. and Fukui, K. (ed.)
1996 *Redefining Nature: Ecology, Culture and Domestication*. Oxford: Berg.

Evans-Pritchard, E.
1940 *The Nuer. A Description of the Modes of Livelihood and Political Institutions of a Nilotic People*. Oxford: Clarendon Press.

Galaty, J. G. and Johnson, D. L. (ed.)
1990 *The World of Pastoralism: Herding Systems in Comparative Perspectiv*e. New York and London: Guilford Press and Belhaven Press.

Herskovits, M.
1926 The Cattle Complex in East Africa. In *American Anthropologist* 28, 230–72, 361–88, 494–528, 633–64.

Ingold, T.
1980 *Hunters, Pastoralists and Ranchers: Reindeer Economies and their Transformations*. Cambridge Studies in Social Anthropology. Cambridge: Cambridge University Press.

Itani, J.
1985 The Evolution of Primate Social Structures. In *Man*, New Series, Vol.20, No.4, 593–611.

Rappaport, R. A.
1968 *Pigs for the Ancestors: Ritual in the Ecology of a New Guinea People*. New Haven: Yale University Press.

1

Introduction: Living with animals as the socially *significant other* in pastoralism

Florian Stammler

Arctic Centre, University of Lapland, Finland & Scott Polar Research Institute, University of Cambridge, UK

Hiroki Takakura

Center for Northeast Asian Studies, Tohoku University, Japan

ABSTRACT

This introduction outlines the main topical themes present in this volume, which focuses on the comparative analysis of human-animal relations among various groups of nomadic pastoralists in Northern Eurasia and Africa. This chapter is divided into five broad sections. The first being a brief reflection on the importance of animals in social science for understanding human livelihoods and identities. This is followed by a short working definition of social significance as a process of conversation in which animals give meaning to groups and individual humans through particular characteristics and practices based on these animals. Thirdly we present an introduction describing the ways in which pastoralists combine the advantages of different animal species in their respective environments and how species diversity is linked to social significance. Fourthly there is an overview of the main animals kept by pastoralists incorporating the position of reindeer in Arctic pastoralism. We conclude with a brief summary of the organization of this volume, highlighting topical threads that link the importance of the different regions and animals. In concluding this overview, we argue for a comparative analysis of the functions, as well as the meanings, of animals for pastoralist livelihoods. The articles collected in this volume represent one moderate contribution to this field of human-animal relations; a field that continues to be a significant endeavor in anthropology's efforts to reach greater understanding of human socio-cultural identity, similarity, and diversity worldwide.

Keywords: human-animal relations, domestication, nomadic pastoralism

THE IMPORTANCE OF ANIMALS FOR UNDERSTANDING HUMAN LIVELIHOODS AND IDENTITIES

The relationship between humans and animals can be viewed as a kind of 'kinship,' and many of us feel some degree of emotional attachment to animals. This is true even though many of us kill animals for reasons ranging from hunting game to ridding our homes of pests and insects, and a great number of us eat the flesh of vari-

ous animals as meat in our daily diets. Different societies have developed elaborate ways of conducting our affairs with animals, and Edward Wilson, a sociobiologist, has pointed out that we have some "innately emotional affiliation to other living organisms" (1997: 165). It has been noted in prominent earlier studies that the very question of who we are lies at the heart of our interest in human-animal relationships. Both before and after Darwin, who linked humans and animals intimately through common ancestry, the definition of what it means to be human has often been constructed based on the concept of animals as the *significant other* (Ingold [ed.] 1988, Morris 2000). In order to act as an important factor in our self-definition as humans, animals need to be close enough to us to relate to, but also far away enough to allow us to distinguish ourselves as different. This relation between these similarities and differences embraces human and animal beings in their natural as well as their supernatural environment. It is in this respect not surprising that anthropomorphic animals and zoomorphic humans are among the oldest known representations of supernatural beings (Shanklin 1985: 376–377, Havelka 2009). It is partially because of this process of self-definition that animals have figured so prominently not only in biological studies but also in the fields of social sciences and humanities.

The introduction to this volume, a work primarily concerned with the social significance of pastoral animals, starts therefore with a reminder that our interest in animals is essentially connected to our interest in ourselves. In this manner, sociocultural research concerning human-animal relationships tends to be confined to humans in their capacity as agents and subjects who act upon and think about animals. The Dutch anthropologist Barbra Noske argues: "[A]nimals tend to be portrayed as passive objects that are dealt with and thought and felt about. Far from being considered agents or subjects in their own right, the animals themselves are virtually overlooked by anthropologists" (Noske 1993). Molly Mullin agrees with Noske on this point and concludes that "It is likely that sociocultural research on human-animal relationships will continue to be as much, if not more, about humans" (Mullin 1999: 201). Even though animals are seen as having agency in older ethnographic accounts (e.g., Riesman 1977), we maintain that a somewhat anthropocentric approach to human-animal relationships is justified in social sciences such as social anthropology. Animal studies, on the contrary, have a greater responsibility to focus on non-human animals in their own right. In order to pursue a more holistic understanding of these issues, it may be fruitful to bring these two fields closer together.

This volume is a moderate attempt in this direction, as the authors analyze the importance of animals for people, and reciprocally, the importance of people for animals. While most of the contributors in this volume come from the field of social anthropology, we also present a view from the 'other side,' in which Kantanen (in this volume) emphasizes the importance of human decisions in the preservation of genetic uniqueness of animals – in this case the Sakha cow. Kantanen, Osva, and Granberg all participated in the same project investigating the significance of the Sakha cow. We treat this project as an example that illustrates the way in which the study of human-animal relations has developed since the seminal works of Evans-Pritchard (1940, 1956), and Ingold (ed. 1988). A recent comprehensive encyclopedia

on this topic (Bekoff 2007) illustrates how studies of animals and people can help break down disciplinary boundaries if this research is justified by the topical focus. The focus in this volume is clearly more limited and does not claim to encompass the encyclopedic character of Bekoff's work. In this collection the authors explore the various ways in which animals are important for twelve different pastoralist societies in three different continents. By doing this comparatively in one volume, the papers are situated in the social and/or cultural anthropological tradition of a science that investigates the essence of human social and/or cultural similarity and diversity.

SOCIAL SIGNIFICANCE OF ANIMALS

It is obvious that for pastoralists as well as for hunter-gatherers animals are of tremendous importance, as it is animals that form the subsistence base for these peoples. The term 'social significance' as applied to animals needs some further definition, since the concept might be interpreted so broadly that it could encompass virtually anything and everything related to the connection between humans and animals. We suggest a working definition stating that the social significance of animals is a process of conversation in which animals give meaning to groups of people and individual humans through particular characteristics and practices based on the animals. Similarly, humans give meaning to and influence animal livelihoods through culturally embedded engagement with animals as one component in an environment that we would like to call a total social phenomenon in the sense of Mauss (1924). This reference to Mauss is purposeful, because among pastoralists the exchange of animals, both living and dead, in different forms is one of the most important methods to provide the 'social glue' for a community. Animals are used as an item in gift exchanges in the sense of Mauss: in addition to their immediate material meaning, animals carry a whole universe of socially important messages for the society. These meanings include, as the reader shall see in the following chapters, the use of animals to establish culturally specific systems of hierarchy and prestige, their use as bride price/dowry, their position as crucial human partners for joint agency in the environment, their role as the main currency in a society, and their ability to sustain relations with spirits through sacrifices. By choosing the term 'conversation' in the sense outlined by Ingold (2007), we emphasize the importance of interaction between humans and animals as a process that is a constituent of the social significance of animals.

The social, cultural, and spiritual significance of animals has been treated separately for hunter-gatherers (Anderson & Ikeya 2001), nomadic pastoralists (Ingold 1980, Stammler & Beach [eds.] 2006) and agriculturalists. Others, however, have pointed to reindeer and their interactions with humans as providing examples supporting the argument that the distinction between domestic and wild animals is neither entirely clear (Blench 1997: 5) nor useful (Takakura, this volume). Several contributions in this volume revisit such boundaries. While the categorizations of various hunted or wild animals and domestic pastoral animals may prove useful for our analysis of the closeness or distance between humans and animals, they are less useful in analyzing the social and economic significance of these animals. Significance is related to closeness, yet these concepts are different: closeness is revealed through

the importance of the practical physical and emotional engagement of humans and animals, whereas significance is revealed through anthropological analysis of the position of the animals in society. While animals hold significance even for those not directly engaged with them, it is the practical and processual link between humans and animals that is most obvious in the study of pastoralist peoples.

One noteworthy difference between the wild and the domestic animal is that in the case of the latter, humans interact with their own live animals on a daily basis. In context of nomadic pastoralism, they do this rather far away from other humans, as nomadic migrations dominate life in remote areas with low population densities and harsh environments. Such settings increase the intensity of the human-animal relationship, hence increasing the social significance of animals. Evans-Pritchard's famous statement that herds are replicas of human society (1940: 37, 1956: 258–260) provides an excellent starting point for analyzing the social significance of animals among pastoral peoples. His statement posits an assumption on the collective level that expands on the view that individual humans and individual animals can represent mirror images of each other. Unlike urban pet owners, pastoralists not only accompany and care for their animals from birth to death; they also kill these animals and use their flesh, skin, and other products as sources of nutrition and livelihood. This indicates that the significance of animals for pastoralists is distinctive, and for this reason the contributions in this volume are selected exclusively from studies that investigate pastoralist groups.

ANIMAL SPECIES DIVERSITY AND SOCIAL SIGNIFICANCE FOR PASTORALISTS

Worldwide, most pastoralists raise more than one species of animal for reasons that include, among others, risk management and pasture efficiency. This has been particularly well documented in Central Asia, while other areas have become best known for pastoralism in which only a particular species is raised. The popularity of certain regions in anthropology may play a role in this situation, and for this reason Africa still holds a great deal of influence, as it is the classical area for research on cattle holding peoples. The powerful cliché of Herskovits' (1926) cattle complex, and the stereotypical dominance of cattle (Khazanov 1994: 63) in the ethnography of East African pastoralists have emphasized this dominance. However, this bias has been rectified by balanced anthropological research (Broch-Due 1990) that pays more attention to species diversity.

The Arctic, on the other hand is best known for reindeer pastoralism; this is primarily due to ecological and climatic reasons in an environment that outsiders find particularly hostile. It is because of the generally held idea that reindeer are the only domestic animals able to survive in this environment that there has not been an 'African style' discussion about the stereotypical importance of reindeer in the circumpolar North.

Northern Eurasian pastoralism is commonly viewed as interchangeable with reindeer pastoralism, and seen as the "only fully monospecialised form of nomadism" (Khazanov 1994: 41). This statement opens Khazanov's (1994: 41–69) useful overview covering the geographical distribution of pastoralist species diversity in Africa, Asia,

and Europe. But there are cases, both historical and current, in which people keep domestic pastoral animals other than reindeer to aid their survival in the high North. In the European Arctic, this occurred under the influence of the Vikings and their descendants. The Norse brought cattle to Greenland in the early middle-ages, and nowadays herders in Greenland and Iceland raise sheep. Additionally, cattle and sheep were also brought to Lapland and raised by the Finns and the Saami. In the Asian Arctic, the cattle and horse herding practiced by the Sakha of Yakutia are the most notable example of species diversification in Artic Pastoralism, and six papers in this volume refer to the activities of these herders (Takakura, Osva, Kantanen, Granberg, Stammler-Gossmann and Stammler). The ethnography detailing the social significance of several pastoral species, as well as hunted and fished animals, should serve to bring studies of the Arctic and Siberia out of the isolation of reindeer-monoculture, and invite more topical comparisons with African and Central Asian pastoralist societies.

Khazanov (1994) points to the obvious fact that animals of different species have different needs, graze on different plants, and have different capabilities regarding their mobility. Though, in many cases they do not graze together, or at least not throughout the entire year. It is therefore no surprise that these animals occupy different niches of significance for their respective holders. However, seeing species diversity as a mere function of ecological imperatives implies that we have missed a whole range of socially, culturally, and religiously determined practices involving animals among pastoralists. The contributions in this volume look at these factors that exist beyond the field of ecology without negating the importance of the natural environment. In this way we follow the path taken earlier by Galaty & Johnson (1990: 21), who emphasized the need to understand which 'socially defined objectives' lay behind the strategies of pastoralists, because through the consideration of economic rationality alone it is impossible to understand decision-making and human-animal relations.

Earlier research has noted that the area of northern Eurasia and the practice of reindeer pastoralism are both under-represented in theory building and academic debate concerning pastoralism. The monographs by Khazanov (1994) and Blench (2006) and the volume edited by Galaty & Johnson (1990) are important exceptions. The other significant area that is underrepresented in pastoralist debates is South America. This region shares with the North the commonality of having a domestic pastoral animal that makes use of the same habitat at the same time as its wild counterpart; in South America this animal is respectively known as the Lama Alpaca (domestic) and the Vicuña (wild). This situation mirrors that of the Arctic where domestic and wild reindeer coexist in the same habitats. South American pastoralism is 7000 years old; approximately as old as African pastoralism according to Browman (1974: 195), whose article is one of the few prominent attempts to bring studies of the Andes area into general pastoralist theory building. A difference that must be noted in comparing llama alcapa pastoralism with the much younger practice of reindeer pastoralism is that llama alpaca pastoralism has been declining in its importance for many centuries. Nonetheless, future research could fruitfully compare results from research focusing on the Arctic and the Andes, contributing to the-

ory building of the hunting-herding continuum and investigating what degrees of difference exist in the social relations of people with domestic and wild animals; a topic to which Takakura will address in his contribution to this volume.

Species diversification is a logical pursuit for pastoralists (Khazanov 1994, Blench 2006, Miller 1998), and three of the most important reasons are:

1) Different animals occupy different niches in harsh and unpredictable environments where often agriculture is not possible.
2) Raising different animals that have diverse needs and reproductive rates insures their holders against losses caused by diseases or conditions that affect just one species.
3) Herds consisting of diverse species provide a variety of resources for subsistence and market production.

Risk aversion figures prominently among the reasons for species diversification. Studies of risk and uncertainty point out, however, that pastoralists diversify species as only one of multiple strategies to insure themselves against natural and social unpredictability. In addition to species diversification, strategies to buffer risks include non-pastoral activities to generate income, as well as such practices as delayed exchange, mutual assistance, spatially dispersed alliances, increased mobility, and ritual practices (Galaty & Johnson (eds.) 1990, Bollig 2006).

When herders raise animals of different species, each of these species will have a particular niche of significance economically, socially, culturally, and spiritually. The most important aspect of the various animal species for the husbander is well summarized by an African scholar, whose statement may be seen as valid for any pastoral setting: "The multiple meanings attached to the various species of livestock are combined and interwoven in various ways related to ethnicity, social status, and gender" (Woldetensae 2002: 78). In this volume, Stammler-Gossmann's and Mazzullo's papers show this type of relationship between animal-species and ethnicity. Through various examples examining the importance of an aboriginal cow breed in a Sakha village with three species pastoralism, Granberg, Osva and Kantanen highlight the relevance of their research for the increasing status of the cow. Virtanen shows in her paper how animal significance is gender-specific among the Mbororo. In addition to the three principal spheres of ethnicity, social status, and gender; several authors in this volume demonstrate that the meanings of pastoral animal species are additionally related to the relative value of animals (Nakamura), to political agendas (Stammler-Gossmann), to religion and ritual (Virtanen), and to mobility and prestige (Stammler).

Let us contrast Kahsaye's statement from Africa with one from the Arctic: "The reindeer is a sacred animal for us. They are our daily food, clothes, transport, housing, and saving accounts." (Sergei Serotetto, March 2007, Nadym, YNAO, Russia). This type of statement, typical of reindeer pastoralists, leads scholars to argue that since the reindeer is the only pastoral animal in the Arctic, they therefore have to fulfill all the niches of significance simultaneously (Stammler 2005: 164–166). This situation results in a stereotypical over-emphasis on reindeer (see Stammler, this volume),

which is maintained by reindeer herders who themselves are politically interested in having an emphasis on their animals. Reindeer therefore become an all-encompassing social phenomenon in the societies of Arctic pastoralists on the one hand, but on the other hand, such over-emphasis neglects the fact that even reindeer herders diversify their risk in an unpredictable environment by relying on other animals, including non-domestic ones. Stammler shows in this volume how these animals become significant for the societies in question, but are underrepresented in studies on pastoralism.

In this same vein, Takakura argues in this volume for revisiting our separation of categories for domestic and wild animals. Nakamura adds to this argument with empirical evidence showing how livestock acquires what she calls the symbolic 'value' of wild animals through changes in practice, citing rituals in which Mongolians began to use the bones of domestic animals instead of wild ones. Nakamura's concept of the 'pragmatic value' of animals seems to be very similar to that of their economic significance, while her 'symbolic value' represents part of the broader social significance of animals. Using terms of significance rather than value, Stammler elaborates along similar lines on the inter-changeability of reindeer and fish among the Yamal Nenets nomads. In this respect the terminology of the papers differ, while the concepts seem to be similar. Acknowledging that such diversity of animals exists even in the Arctic brings the study of reindeer pastoralism out of its academic isolation, and at the same time shows how studies from the North can contribute through theoretical insights of broader relevance. The comparison of the significance of different animals can illuminate reasons why some animals may have become 'keystone species'[1] for certain societies, while others remain undervalued.

An overview of 'keystone species' among pastoral animals

In order to position reindeer alongside other animals kept by pastoralist peoples, we should first review the animals primarily raised in pastoral societies. In most of these societies one particular species of animal stands at the very top of the social significance ladder. In the most prominent cases, these are cattle (East Africa), to which many owners try to convert other animal property. In South America, this niche of significance is occupied by camelids (llama, alpaca) in the Central Asian highlands, it is held by the yak, in the Central Asian steppes by the horse, in the deserts by the camel, and in Northern Eurasia by reindeer. The assessment of the significance of the supreme animal in different pastoralist societies is remarkably similar across the species. In order to show how scholars have evaluated the social significance of a variety of animals for various peoples, we have cited some examples and arranged these according to the size of the species.

The **camel** determines the wealth and social status of many pastoralists in Africa's deserts, in Somalia, Sudan, Ethiopia, and northern Kenya (Getahun & Belay 2002: 158). Schlee identifies what he calls a camel complex as a "cluster of cultural features associated with camels" (1989: 72) around which a Proto-Rendille Somali culture evolved and formed the basis for the pastoralist livelihoods of northern

[1] We use this term for animals that are accredited with outstanding importance for their owners in the different pastoralist societies.

Kenya, southern Ethiopia and Sudan, and western Somalia. In such a baseline culture the camel is the supreme animal, or keystone species, even though Schlee himself, and Konaka in this volume show that most of the groups in the area raise a multiplicity of animal species. As described by Schlee, camels are a symbol of wealth and prosperity among the Gabbra, Sakuye, and Rendille. This is even true among the Ariaal, although here cattle have more social significance (Fratkin & Roth 1990: 387). The importance is well illustrated in the rule stipulating that that Gabbra and Sakuye men should not marry girls from the neighbouring Boran, who do not belong to the camel complex. Boran girls "are bad for the camels" (Schlee 1989: 73).

Cattle have been called the 'supreme form of property' (Comaroff & Comaroff 1991) for many pastoralists, particularly in East Africa, where among the Nuer the herd of cattle is seen as a replica of human society (Evans-Pritchard 1940). It is from the classical African ethnographies that we derive most of our understanding of the significance of animals. Diamond (2005) also partially attributed the collapse of the Greenlandic Norse culture to its irrational obsession with cattle, which were prohibitively costly to maintain in an unfavorable climate. Along similar lines, Fratkin & Roth (1990: 389) show that cattle are more susceptible to extreme weather events, and Khazanov (1994: 46–48) rightly notes that cattle are not well suited for highly mobile pastoralists. They cannot graze too far from water, and their range of mobility is limited. That is why in most regions of the world cattle are associated with sedentary or less mobile pastoralism rather than with nomadism. In this volume the articles of Virtanen on the Mbororo, and of Osva, Granberg and Kantanen, and sections of Stammler describe this agropastoralist setting in Northeast Siberia.

As Miller (1998: 2) points out, for Tibetan nomads the **yak** represents wealth and prestige. Therefore we can see cases where pastoralists keep exceptionally high proportions of yaks in their herds, though maybe these animals are not necessarily of calculable economic importance. In Nakamura's (this volume) terms, this illustrates the high 'symbolic value' of the Yak. In Western Tibet, for example, yaks counted for 46% of the livestock biomass, but only 5% of the livestock income. Raising sheep and goats delivered much faster and better returns, and yet people invest in yaks (Miller 1998: 4).

Just as yaks typify Tibetan pastoral nomadism, **horses** are well known as a key pastoral species for central Asian nomads, who are represented in this volume by Nakamura's contribution. A Kazakh proverb states, "not the man who is reproved dies, but the one who loses his horses" (Khazanov 1994: 47). Less recognized in pastoralism studies is the social significance of the horse as supreme pastoral animal among the Sakha (Maj 2008, Takakura 2002, 2007), even though cattle may be more economically significant in remote rural areas (Crate 2008). "Almost the entire worldview of the Yakut concentrates on horse-livestock. And he lives, as a fairy tale says, instead of counting money, measuring the thick fat of his mares (female horses), and dividing the fat according to vertebrae. He improves his throat with *kumys*, and with cracked bones he fixes his teeth" (Khudiakov 1869: 229). Maj (2008: 43) notes that the prestige of horse herding lies in its mobility in 'open nature.' Cattle herding is considered 'boring, restricting, and bad smelling.'

Donkeys have been a symbol of relatively low prestige since ancient times (e.g.

in the bible), although domestication of the donkey in Africa 6000 years ago was essential for the development of both pastoralism and ancient cities and states. This can be seen in the fact that donkeys were used to carry provisions for the early Egyptian pharaohs (Rossell et al. 2008). Today donkeys serve an essential purpose on a daily basis as beasts of burden in parts of the Near East and Africa. Among some pastoralists such as the Turkana, the milk, meat, and blood of donkeys belong to their normal diet. Corresponding to their rather low status in society, donkeys get less attention in academic studies, many of which are more concerned with keystone species. Twerda et al. (1997: 48), for example, reported that the importance of donkeys was 'discovered' as a side effect of a development project focusing on Turkana and Samburu pastoralists in northern Kenya – the region represented in this volume by Konaka's paper. This was viewed as being connected to the fact that human-donkey relations take place mostly in the women's sphere in pastoralist societies that are characterized as camel-keeping.

In South America, **camelids** (**llama**, **alpaca**) are described as having a long history of crucial cultural and ritual significance stretching from the time of Inca Empire (Wheeler 2005), to modern times as seen in research concerning the Quechua and other pastoralists (Tichit & Genin 1997: 178). According to Dransart (2002: 13), until the present "the quality of the bond maintained between human beings and animals is the hallmark of the society." Nowadays with more importance being placed on agriculture and also sheep, camelids are kept primarily for their social significance, as Browman suggests in order "to participate in the institutionalized system of reciprocity" (1974: 195). This is confirmed in the most recent study by Markemann et al. (2009), which states that traditionally important functions of keeping Llamas prevail.

Reindeer are the only pastoral animal in the High North. They share their southernmost habitat with the Evenki of northeastern China. Reindeer have made much of the permanent human presence possible in otherwise inaccessible and uninhabitable areas (Vitebsky 2005). Reindeer are extremely adaptive, and hold various roles in different societies. These roles range from the animals being used mainly for the production of meat (Chukotka, northern Europe) to their being employed primarily for transport (taiga Evenki, southern Siberia) in long distance migrations as well as local circular mobility for grazing . This adaptability leads to diversity across the Arctic, where reindeer can acquire significance as both small stock and large stock, as purely economic and mostly socio-cultural entities, and as combinations of all of the above (Stammler 2005: 164–166). Five papers in this volume touch upon this versatile significance of reindeer: Vuojala-Magga and Stammler emphasize the personal relation between reindeer personalities and human personalities in a process of symbiotic domestication (Beach and Stammler 2006), while Takakura applies similar concepts in his analysis of the closeness between humans and reindeer. Mazzullo analyses the importance of reindeer for the Saami perception of space and social environment, Stammler investigates the relative social and economic significance of reindeer within several animal species kept by Arctic peoples, and Stammler-Gossmann deals with reindeer in terms of their power as a political symbol. All these examples show how, for many of the Northern Eurasian indige-

nous peoples, reindeer have advanced to the status of prime identity marker, even though hunting and fishing are more important for subsistence in many areas.

Sheep and **goats** are, often conceived as 'poor alternatives' for large stock and used in many cases for 'stocking up' (e.g. Africa, Inner Asian Highlands) (Spencer 1998: 22), without possessing much direct social significance. However, Barth's (1964) seminal study of the Basseri detailed the importance of sheep for the nomads of Iran. Sheep have also traditionally been highly esteemed in parts of central Asia. This is demonstrated in an Uzbek belief that states sheep came straight from heaven (quoted in Khazanov 1994: 46). Sheep have also been used in East Africa in marriage transactions, in particular in exchange with intermediaries and members of alliances (Spencer 1998: 23). In this volume Virtanen highlights the increased significance of sheep among the Mbororo in the course of the ongoing Islamization taking place amongst these people. In some places the goat has gained more economic significance for its valued cashmere wool, particularly after the breakup of the Soviet Union, but goats still stand as an impoverished alternative to sheep (for impoverished peoples, Timkovsky 1824: 79 after Khazanov 1994: 47). In Africa, Broch-Due has qualified the understanding of Turkana as cattle holding people by showing the symbolic, ritual, and social importance of goats; going as far as saying "goats in a sense construct Turkana as pastoralists and people – as Turkana proper" (1990: 57), while Twerda et al. (1997) point to the gendered importance of the donkey for the very same people.

Organization of this volume

The above overview has shown that various animals occupy different niches of significance for their holders. While most groups identify with one keystone species, other animals are also significant for these people in the various spheres of their pastoral livelihood. The field sites of the contributions in this volume cover vast regions across Northern Eurasia and Africa. Certainly there are still other regions not covered here that practice pastoralism; such as some parts of Inner Asia, the Mediterranean and Middle East, and South America. However, in the regions on which we focus in this volume, most of the animals introduced above are socially significant. All the papers are united by the theoretical interest in the closeness of the human-animal relationship and the defining significance that animals have for humans and their culturally specific pastoral livelihoods in different remote areas of our planet. We have chosen, however, to organize the volume into four clusters, each of which deals with the socio-cultural significance of animals among the nomadic pastoral societies from the following different perspectives:

1) The significance of the conceptual distinction between wild and domestic animals.
2) The importance of socio-cultural factors for the subsistence dimension of human-animal relations in pastoralism.
3) Animal symbolism in its gendered, religious and political dimensions.
4) The global significance of local animal species for humanity.

Reconsidering the Borders between wild/domestic or hunting/herding The first cluster focuses on human-animal relations through a re-examination of the conventional distinction between hunter-gatherers and pastoralists. Existing research presupposes the difference between wild and domesticated animals as being crucial not only for human physical subsistence activities, but also for human modes of dwelling and moving in the environment (Ingold 2000). We recognize the importance of animal domestication in human history and the feedback that this domestication provides to animal morphology and genetics. However, the way a given human population perceives and deals with domestication is culturally, historically, and geographically different, and recent research has pointed to the pronounced long-term and continuous processual character of domestication not only in the Arctic (Beach and Stammler 2006), but also in other pastoral regions such as Africa (Rossell et al 2008). Therefore, here we begin to reconsider the delineation between wild and domestic animals in order to explore their social significance in human pastoral societies.

Hiroki Takakura critically considers an earlier theoretical assumption of the exceptionalism of reindeer herding in the paper "Arctic Pastoralism in a Subsistence Continuum." Rather than the concept of tameness, which is associated with an evolutional perspective directed from the wild to the domestic stage of an animal, he proposes a new idea, familiarity with the animals. He inquires as to why hunting and herding are considered continuous in the Arctic regardless of reindeer domestication. Takakura insists that the arctic pastoralists strategy for differentiating familiarity with animals enables them either to maintain large-scale reindeer production or to engage in hunting and fishing. The combination of choices may seem random, but actually it forms a "subsistence continuum" within a specific context. Investigating this continuum of familiarity with animals, he argues, enables us to analyze the relations of all pastoralists with their animals within the same framework.

The next article is "Knowing, training, learning: the importance of reindeer character and temperament for individuals and communities of humans and animals," by Terhi Vuojala-Magga. She vividly describes the process of training reindeer as a personality-forming experience for both the human and the animal partner. Her ethnography makes us recognize how closely humans relate to reindeer as individuals with personality. On the other hand, her paper also exemplifies how this animal never loses its wildness. Her description sheds light on the interaction of individual reindeer in the herd of livestock with the herder, which supports the theory of symbiotic domesticity proposed by Florian Stammler in the concluding paper of this volume.

The necessity of reconsidering the wild/domestic dichotomy is further evidenced in the study of the Samburu pastoralists of East Africa by Shinya Konaka in his paper "Metaphorical Projection and Integrated Cognitive Systems: The Samburu in North Central Kenya." He focuses on their perceptions of livestock, humans, and wild animals and argues that the Samburu's cognitive system does not separate these categories, but instead perceives them as parts of an integrated system that is loosely and flexibly connected by the logic of metaphor. The distinctions between the three categories are vague, permeable, and even convertible.

Socio-cultural factors and the subsistence dimension of human-animal relations in pastoralism The next cluster deals with the flexible formation of subsistence patterns in the Arctic as a response to pressures by political-economic systems beyond the pastoralists' control. The paper "Establishment of large-scale reindeer herding in the European and West Siberian Tundra" by Shiro Sasaki focuses on changes that have taken place in the herding practices of the Nenets people in the European and West Siberian tundra in the 18th and 19th centuries. He introduces some previously presented theories concerning the reasons for these changes and emphasizes the importance of socio-economic factors such as the colonization by the Russian state, rather than climate and ecological factors as the reasons for these changes.

The influence of the state affects nomads in various ways. Nuccio Mazzullo's paper "More than meat on the hoof? Social significance of reindeer among Finnish Saami in a rationalized pastoralist economy" focuses on the importance of the reindeer for Saami cultural identity and their perception of space. The paper details the continued significance of reindeer 'beyond' economy, arguing that increase and decrease of economic and socio-cultural significance are not necessarily correlated. This is in line with the papers by Nakamura and Virtanen in this volume, supporting the theoretical implication, suggested in Stammler's concluding paper, that the economic significance of animals changes faster than their socio-cultural significance.

Power of Animal symbolism in its gendered, religious and political dimensions The next cluster covers the symbolic power of livestock for pastoral and post-pastoral communities adapting to a changing world. The paper "Between Cattle and Islam: Shifting Social and Gendered Significance of Cattle among the Mbororo Pastoralists in Cameroon" by Tea Virtanen explores the symbolic meaning of cattle as a primary animal among the pastoral Mbororo people against the backdrop of increasing Islamization and sedentarization. The author examines the ways in which animal symbols remain embedded in the cultural setting under conditions of social and religious change. The paper shows that the pressures for change coming from outside the pastoral group have resulted in a 're-invention' of the meaning of cattle, and thus ultimately have provided a sense of cultural continuity.

Tomoko Nakamura continues along similar lines in her analysis of livestock as symbols in post-socialist Mongolia. The paper "Fluctuations in the Value of Horses in Mongolia Before and After Socialism" focuses on the role of the horse as a keystone livestock species for Mongolian people and links ethnography to value theory, where she distinguishes between pragmatic and symbolic value of horses for the pastoralists. Anna Stammler-Gossmann further examines the changing role and meaning of animal symbolism from a historical perspective. Her paper "Political animals of Sakha Yakutia" discusses the political symbolism of animals in Yakutia where the reindeer, the horse, the cow, and to some extent even the mammoth are afforded symbolic power according to the changing political climate and directions of given periods. The author emphasizes the interchangeable nature of animal sym-

bols in the process of formation of a regional Sakha identity and its relations with the center of power in Moscow.

Global significance of local animal species for humanity The importance of biodiversity for human life on our planet is recognized in academia as well as international politics. In recent decades major efforts have been undertaken to preserve this biodiversity, which has come under increasing threat from the rationalized global economy. Most preservation measures rely on a combination of efforts by scientific communities, policy makers, influential economical companies, and powerful NGOs. The following three papers add a much needed dimension to biodiversity preservation studies by focusing on the social significance of biodiversity, exemplified through the local breed of Yakutian cattle in the Eveno-Bytantay district of the Sakha Republic; an interesting Arctic 'island' of multi-species pastoralism that also figures in the papers of Takakura and Stammler in this volume.

Leo Granberg successfully takes biodiversity back from the arena of global politics and returns it to the grass-roots level. His paper "The Interrelationship of Sociodiversity and Biodiversity: Experiences from a Post-Soviet Siberian Village" investigates the processes of privatization and other structural changes in animal production. Granberg finds that sociodiversity facilitated the preservation of a single native cattle breed, the last remnants of the Siberian 'Turano-Mongolian' type of domesticated cattle (*Bos taurus*), and the recovery of animal production after the crises. Granberg sees a correlation between the size and organizational forms of production units (farms, households) in pastoralism and the preservation of biodiversity of small locally adapted breeds. He concludes that a higher sociodiversity in its dimensions of employment and social organization of the production facilitates a higher biodiversity. Kantanen's paper "The Origin and Genetic Diversity of Native Yakutian Cattle as Revealed by DNA-Marker Analysis" adds a background from natural science to the biodiversity discourse in the Siberian remote villages of Eveno-Bytantay, where Yakutian cattle can survive in one of the harshest cold climates in the Northern hemisphere. In addition to the evidence gathered through genetic research, Kantanen, a biologist, also successfully links the natural and the social dimension by indicating the potential role that Yakutian cattle could play for regional socio-economic development in the future.

Interdisciplinarity continues in the paper of Anu Osva "The symbiotic human animal relationship: An artistic investigation of Yakutian cattle." Osva, an artist with scientific background in animal breeding, explores the possibility of using the arts (painting in this case) to position this local species as a mediator connecting science and society. In Siberia she worked with Kantanen's research team, interviewing various people as well as drawing, painting, and photographing the cattle. Osva presents a different vision of the field than that of the social scientists, yet she convincingly shows how serious work employing a different method enriches our understanding of the very same topics. The symbiotic cohabitation of humans and animals is analyzed by Osva from a different angle than in the papers of Vuojala-Magga, Takakura, or Stammler. Osva emphasizes the link to the broader history of human-animal relations, drawing on ideas from the bible, René Descartes, and

Charles Darwin. Like Stammler-Gossmann and Stammler, Osva problematises how humans have always been anthropocentric in their perception and study of animals. In visual arts, anthropocentrism in human-animal relations translates to anthropomorphism, which Osva tries to counter with the outcome of her work: large portraits of cows comprising part of an artistic project entitled 'Yakutian Cattle – Exploring Expedition to Siberia in the 2000's.'

Conclusion: comparison from the Arctic In the conclusion of the volume, we return to the theoretical potential that the study of Arctic pastoralists holds for our understanding of human-animal relations in general. All groups of nomadic pastoralists except those in the Arctic apply multi-species strategies to their livestock in their own different ways. Various animals occupy different roles and meanings in their societies. By contrast, Arctic reindeer herding is classified as mono-species oriented and therewith somehow positioned beyond comparison with the rest of the pastoralist world. On the other hand, even though all reindeer herders also engage in hunting, the categorization of these peoples as hunter-gatherers does not fit well either, since it is the domestic reindeer that stands out for these pastoralists as both the significant animal-other and supreme property, as the papers by Mazzullo, Vuojala-Magga and Stammler show. Rather than forcing reindeer pastoralism into comparisons taken from a non-arctic perspective, we suggest redefining the format and content of nomadic pastoralist comparison from a northern perspective by choosing topics that are pertinent and important to peoples living in the Arctic but have implications for other pastoralist livelihoods as well. Another ambitious endeavor for future comparative research would be a comparison between high latitude (Arctic) and high altitude (Tibetan, Andean) pastoralism, and a consideration of the Arctic and the Andes on the hunting-herding continuum with domestic and wild reindeer as well as domestic and wild camelids. In this way we can revisit categories such as mono-species orientation, diversification, domestication, and human practices with animals as issues that are embedded in a total social environment.

Stammler in his concluding paper "Animal-diversity and its social significance among Arctic pastoralists" begins to construct an analysis based on the intimacy of the partnership that humans have with animals. The human role in the environment among pastoral people can be analyzed as one that is shaped and mediated in a complex process of domestication, which is seen as a reciprocal process taking place between humans and animals. This leads to a quality in the relationship that Stammler calls symbiotic domesticity, which outlines the principles involved in developing closeness between humans and animals. He suggests identifying 'niches of significance,' hierarchies of prestige, and analyzing how different animals fill these niches, then placing these factors as alternative axes of cross-regional comparison in pastoralism. Supporting the positions taken by Takakura's introductory paper, Stammler also shows how niches of significance can be filled by various animals that may be domestic or hunted, fished, and herded. Drawing on evidence from his own fieldwork as well as from several contributions in this volume (Nakamura, Virtanen, Mazzullo), Stammler concludes that the economic significance of animals is less stable than the social significance, as pastoralists and hunters readjust the former

quickly in responding to changes in their surrounding environment, while they retain the latter as a system of social order.

Shanklin (1985) sees the field of human-animal relations as being broken down into research on the function of animals and on the meaning of animals for humans. Both of these directions are anthropocentric; an orientation that is problematized by several papers in this volume (Osva, Stammler, Stammler-Gossmann). Shanklin argues that the function of animals, mainly in economic and ecological terms, is much better understood than the symbolic and metaphoric meaning of animals. While we acknowledge in principle the usefulness of such a distinction, we do not share Shanklin's view regarding the lack of studies in animal-meaning. Shanklin herself draws our attention to numerous studies in this direction, starting with the classics of Evans-Pritchard and Levi-Strauss and the anthropology of religion, and then continuing on to more recent works. That animals have come to signify wealth, prestige, hierarchy, and human mirror images is well known and these representations have been analyzed since ancient times. We can see obvious demonstrations of this in the Bible; the image of Jesus riding into Jerusalem on a donkey calf (the Bible, Marc, chapter 21), when the camel was the indicator of wealth in the region (for example in the Bible, Genesis, chapter 30: 43 and 32: 15) contained explicit meaning in that the animal transporting Jesus emphasized the message of God's closeness to ordinary people. The lamb as a mirror-image of Christ, and the image of herder and flock for god and his parish clearly invoke the meaning of care for another, which is so typical for human-animal relations in pastoralism (see also Tani 1989, 1996).

The editors would like this volume to illuminate the usefulness in the connections between two fields: the papers in this volume show how the function and the meaning of animals for pastoralists are interdependent, as animals acquire meaning for society through their function, but on the other hand their function is influenced by their meaning. In Arctic settings, the quote by Sergei Serotetto cited earlier in this introduction emphasizes the relationship between the two, as the multi-functionality of the reindeer is linked to its sacredness, which in Serotetto's terms is identical to its multiple symbolic meaning. Along these lines we illustrate how Shanklin's (1985: 380) statement made 25 years ago has not lost any of its timeliness: investigation of human-animal relations continues to be one of anthropology's most fruitful endeavors. One which more recently has also become more open to interdisciplinary enquiry.

REFERENCES

Anderson, D. and Ikeya, K.

2001 Introduction: Hunting Culture and Mining Knowledge. In *Parks, Property and Power: Managing Hunting Practice and Identity within State Policy Regimes*, vol. 59, *Senri Ethnological Studies*, ed. D. Anderson and K. Ikeya, 1–6. Osaka: National Museum of Ethnology.

Barth, F.

1964 *Nomads of South Persia. The Basseri Tribe of the Khamsch Confederacy*. Oslo and New York: Oslo University Press, Humanities Press.

Beach, H. and Stammler, F.

2006 Human-Animal relations in pastoralism. In *People and Reindeer on the Move*, Special Issue of *Nomadic Peoples*, No. 10,2, ed. F. Stammler and H. Beach., 5–29. Oxford: Berghahn.

Bekoff, M. (ed.)
2007 *Encyclopedia* of *Human-Animal Relationships* [Four Volumes]: *A Global Exploration of Our Connections with Animals*. Westport: Greenwood Press.

Blench, R.
1997 Neglected species, livelihoods and biodiversity in difficult areas: how should the public sector respond? In *Natural Resource Perspectives* 23: 10pp.
http: //www.odi.org.uk/resources/download/2134.pdf (accessed 24 December 2009).
2006 *Pastoralism in the new millennium*. Updated version of the 2001 FAO, Animal production and Health Paper 150.
http: //www.rogerblench.info/Development/Pastoralism%20monograph.pdf (Accessed 8 December 2009).

Bollig, M.
2006 *Risk Management in a Hazardous Environment: A Comparative Study of two Pastoral Societies* (Studies in Human Ecology and Adaptation 2). New York: Springer.

Broch-Due, V.
1990 Cattle are Companions, Goats are Gifts – Animals and People in Turkana Thought. In *From water to world-making: African models and arid lands*, ed. G. Palsson, 40–58. Uppsala: Scandinavian Institute of African Studies.

Browman, D. L.
1974 Pastoral Nomadism in the Andes. In *Current Anthropology* 15, 188–196.

Comaroff, J. and Comaroff, J.L.
1991 "How Beasts Lost Their Legs": Cattle in Tswana Economy and Society. In *Herders, Warriors, and Traders: Pastoralism in Africa*, ed. J. G. Galaty and P. Bonté, 33–61. Boulder, San Francisco and Oxford: Westview Press.

Crate, S.
2008 Walking Behind the Old Women: Sacrad Sakha Cow Knowledge in the 21st Century. In *Human Ecology Review* 15, 115–129.

Diamond, J.
2005 *Collapse: How Societies Choose to Fail or Survive*. New York: Viking books.

Dransart, P. Z.
2002 *Earth, water, fleece and fabric: an ethnography and archaeology of Andean camelid herding*. London and New York: Routledge.

Evans-Pritchard, E.
1940 *The Nuer. A description of the modes of livelihood and political institutions of a nilotic people*. Oxford: Clarendon Press.
1956 *Nuer Religion*. Oxford: Clarendon Press.

Fratkin, E. and Roth, E.A.
1990 Drought and Economic Differentiation Among Ariaal Pastoralists of Kenya. In *Human Ecology* 18/4, 385–402.

Galaty, J. G. and Johnson, D.L.
1990 Introduction: Pastoral Systems in Global Perspective. In *The World of Pastoralism. Herding Systems in Comparative Perspective*, ed. J. G. Galaty and D. L. Johnson, 1–31. New York, London: Guilford Press, Belhaven Press.

Getahun, T. and Belay, K.
2002 Camel Husbandry Practices in Eastern Ethiopia: The Case of Jijiga and Shinile Zones. In *Nomadic Peoples (NS)*, vol 6/1, 158–179. Oxford: Berghahn Journals.

Havelka, R.
2009 The significance of Sacred Places: the contribution and limits of cognitive approaches to its research. In *Sacra* 2009/2. http: //www.sacra.cz.

Herskovits, M. J.

1926 The cattle complex in East Africa. In *American Anthropologist*, XXVIII, 230–72, 361–80, 494–528, 630–64.

Ingold, T.

1980 *Hunters, Pastoralists and Ranchers: Reindeer Economies and their Transformations*. *Cambridge Studies in Social Anthropology*. Cambridge: Cambridge University Press.

2000 *The perception of the environment: essays in livelihood, dwelling and skill*. London and New York: Routledge.

2007 Conversations from the North: Scholars of Many Disciplines and Inhabitants of Many Places in Dialogue with One Another, with Animals and Plants, and with the Land. In *Knowledge and Power in the Arctic* (*Arctic Centre Reports 48*), ed. P. Kankaanpää, S. Ovaskainen, L. Pekkala and M. Tennberg, 11–15. Rovaniemi: University of Lapland, Arctic Centre.

Ingold, T. (ed.)

1988 *What is an animal?* Vol. 1. *One world Archaelology*. London: Unwin Hyman.

Khazanov, A.M.

1994 *Nomads and the Outside World*, Second edition. Madison: University of Wisconsin Press.

Khudiakov, I. A.

1869 [1969] *Kratkoe Opisanie Verkhoianskogo Okruga* [Brief description of Verkhoyansk region]. Leningrad: Nauka.

Maj, E.

2008 La vache sedentaire, le renne et le cheval nomades chez les Evenes et las Iakoutes des monts de Verkhoyansk (Republique Sakha, Iakoutie) [The sedentary cattle, the "nomadic" reindeer and horse of the Evens and Yakuts in Verkhoyansk Mountains (Sakha Republic, Yakutia)]. In *Fondation Fyssen – Annales* 23, 36–48.

Markemann, A., Stemmer, A., Siegmund-Schultzea, M., Piephoc, H.-P. and Valle Záratea, A.

2009 Stated preferences of llama keeping functions in Bolivia. In *Livestock Science* vol. 124/1, 119–125.

Mauss, M.

1924 [1969] *The Gift: Forms and Functions of Exchange in Archaic Societies*, third corrected english edition. London: Cohen & West.

Miller, D. J.

1998 Tibetan pastoralism: Hard times on the plateau. In *Chinabrief* 1, 17–22.

Morris, B.

2000 *Animals and Ancestors. An ethnography*. Oxford and New York: Berg.

Mullin, M. H.

1999 Mirrors and windows: Sociocultural studies of human-animal relationships. In *Annual Review of Anthropology* 28, 201–224.

Noske, B.

1993 The Animal Question in Anthropology: a Commentary. In *Society and Animals* 1(2), 185–190.

Palsson, G. (ed.)

1990 *From water to world-making: African models and arid lands*. Uppsala: Scandinavian Institute for African Studies.

Riesman, P.

1997 Freedom in Fulani Social Life. Chicago: University of Chicago Press.

Rossel, S., Marshall, F., Peters, J., Pilgram, T., Adams, M. D. and O'Connor, D.

2008 Domestication of the donkey: Timing, processes, and indicators. In *Proceedings of the National Academy of Sciences PNAS* vol. 105/10, 3715–3720.

Schlee, G.

1989 *Identities on the Move*. Manchester: Manchester University Press.

Shanklin, E.

1985 Sustenance and Symbol: Anthropological Studies of Domesticated Animals. In *Annual Revivew of Anthropology* 14, 375–403.

Spencer, P.

1998 *The Pastoral Continuum. The Marginalization of Tradition in East Africa*. *Oxford Studies in Social and Cultural Anthropology*. Oxford: Clarendon Press.

Stammler, F.

2005 *Reindeer Nomads Meet the Market: Culture, Property and Globalisation at the End of the Land*. Vol. 6. *Halle Studies in the Anthropology of Eurasia*. Münster: Lit publishers.

Stammler, F. and H. Beach (eds.)

2006 People and Reindeer on the Move, Special Issue of *Nomadic Peoples*, No. 10,2. Oxford: Berghann.

Tani, Y.

1989 Thegeographical distribution and function of sheep flock leaders: a cultural aspect of the-man-domesticated animal relationship in southwestern Eurasia. In *The Walking Larder: patterns of domestication, pastoralism, and predation*, ed. J.Clutton-Brock, 185–199. London and Boston: Unwin Hyman.

1996 Domestic Animal as Serf: Ideology of Nature in the Mediterranean and the Middle East. In *Rethinking Nature: Ecology, Culture and Domestication*, ed. R.Ellen and K. Fukui, 387–416. Oxford: Berg Publishers.

Takakura, H.

2002 An Institutionalised Human-Animal Relationship and the Aftermath: A Reproduction Process of Horse-bands and Husbandry in Northern Yakutia, Siberia. In *Human Ecology* 30(1), 1–19.

2007 Newly emerged independent herding and the horse trust system among Sakha agro-pastoralists in Siberia: Socio-economic conditions in the Post-socialist era. In *Asian and African Area Studies, Special Paper* (10), 63–76, Kyoto: Kyoto University.

Tichit, M. and Genin, D.

1997 Factors affecting herd structure in a mixed camelid–sheep pastoral system in the arid Puna of Bolivia. In *Journal of Arid Environments* 36, 167–180.

Twerda, M., Fielding, D. and Field, C.

1997 Role and management of donkeys in Samburu and Turkana pastoralist societies in Northern Kenya. In *Tropical Animal Health and Production*, vol. 29/1, 48–54. Springer Netherlands.

Wheeler, J.C.

2005 Pre-conquest Llama and Alpaca breeding. In *The Camelid Quarterly*, December, 1–5.

Wilson, E.O.

1997 *In search of nature*. London: Penguin books.

Vitebsky, P.

2005 *Reindeer People. Living with Animals and Spirits in Siberia*. London: Harper Collins.

Woldetensae, K.

2002 *The Cultural Ecology of Pastoralism in Eritrea: a Geographical Inquiry*. PhD thesis. Baton Rouge, La: Louisiana State University.

2

Arctic pastoralism in a subsistence continuum: A strategy for differentiating familiarity with animals

Hiroki Takakura

Center for Northeast Asian Studies, Tohoku University, Japan

ABSTRACT

This paper critically considers the hitherto theoretical assumption of the exceptionalism of Arctic pastoralism by examining the management of reindeer herds in the Arctic forest ecology. The reindeer is often called "half-domesticated" from the comparative perspective of world pastoralism. In contrast, I propose a new idea, familiarity with the animals, which is quite different from tameness, the reversible relationship between a human and an individual animal. I ask why hunting and herding are considered continuous in the subsistence pattern, regardless of the reindeer's domestication. The cases discussed in this paper are the forest reindeer herding of the Eveny in eastern Siberia and the Nenets in western Siberia. These two groups developed reindeer pastoralism independently in terms of cultural history. Nonetheless, they differentiated the role of livestock similarly according to familiarity. This strategy enables these peoples either to maintain large scale reindeer production or to engage in hunting and fishing. The combination of choices may seem random, but actually it forms a "subsistence continuum" within a specific context. The hunter-herder continuum in the Arctic region is one these. Arctic pastoralists employ diversification of roles in mono-species livestock; on the other hand, the arid pastoralists prefer the diversification of domestic animal livestock. In this respect, all pastoralists relate to the animals in the same way. Each strategy for forming various levels of familiarity works to bring about diverse ways of herding and the pastoral way of life, as well as the complexities of subsistence.

Keywords: Forest Nenets, Eveny, tameness, hunter-herder continuum, reindeer herding, pastoral continuums

INTRODUCTION

Why is reindeer herding assigned a unique position in the broader perspective of nomadic pastoralism? This has been an important question since the early days of ethnographical fieldwork among the Siberian indigenous peoples. Of course, the relationship between humans and reindeer in the Arctic is certainly different from the well-known deep and emotional relationship between humans and cattle in East Africa. On the other hand, classifying reindeer as "un-tame" is questionable. The terms "untamed" or "half-tame" do not accurately reflect the relationship between

the reindeer herders and the animals.

The co-editor of this volume, Florian Stammler, asks whether categories of hierarchy and prestige of different animals among pastoralists are applicable to Arctic settings. The question suggests the need to explore the features of Arctic settings in comparison to the arid nomadic pastoral societies, especially in respect to mono-species and multi-species animal domestication. As is well known, Arctic nomads keep only reindeer as livestock, and the subsistence pattern of hunting-gathering and pastoralism is undifferentiated. Traditional anthropological knowledge attributes this to the degree of tameness of domesticated reindeer. From an evolutionary perspective of domestication, reindeer are referred to as "half tame" or "half domesticated." Therefore, previous studies justify the reason for the lack of differentiation between hunting and herding being the relative tameness of reindeer. Reindeer are not fully domesticated animals so there is no difference between hunting and herding, which seems to be a tautological statement. Nonetheless, this unusual feature forms the basis for considering Arctic reindeer herding to be an exception in the broader perspective of pastoral nomads and their relationships to animals.

However, a recent reexamination and consideration of the research argues against the exceptionalism of Arctic reindeer herding. Reframing the question usually posed in the previous research, we ask why hunting and herding are considered continuous in the subsistence pattern, regardless of whether or not reindeer are sufficiently domesticated.

First, a review of studies of Arctic subsistence reveals some difficulties with the exceptionalist approach. Next, the so-called "symbiotic domestication" (Beach and Stammler 2006) and the continuum theory of subsistence pattern (Layton 1991) suggest new theoretical approaches.

Of particular interest are the studies of the forest reindeer herding of the Eveny in eastern Siberia and of the Nenets in west Siberia from my field data. These two groups are distributed differently in geography, belong to different linguistic groups, and have developed independently a cultural history of reindeer. Nonetheless, they handle the differentiation of the role of livestock in similar ways according to the familiarity with animals that enables them either to maintain large scale reindeer production or to engage in hunting and fishing.

Furthermore, the feral behavior of reindeer is not an attribute of the level of domestication; rather it can be better understood in the context of "large stock" herd management.

Finally, strategies among arctic and arid pastoralists are structurally the same regarding relationships between humans and animals. The former employs the diversification of roles in the mono-species livestock, and the latter prefers the diversification of domestic animal livestock[1]. The difference is not determined on the basis of culture or history, but it is shaped by the time and space constraints of the ecological and social environment settings. Therefore, what takes place in the Arctic setting may well be equally applicable to arid pastoralists.

[1] Stammler (2005: 165-166) made this argument, claiming that reindeer have the significance of both small and large stock. However, in this volume, he shows how herders diversify roles beyond the species of reindeer, where, for example, fish acquire the economic significance of small stock.

ARCTIC SUBSISTENCE THROUGH THE VIEWPOINT OF EXCEPTIONALISM

It is well known that Arctic indigenous hunter-gatherer and pastoralist economies acquire exceptional characteristics that are different from those in the temperate and tropical regions. The high ratio of animal (fish) resources and low ratio of plant (vegetable) resources in producing and consuming food among the Arctic peoples is one the best-known examples of how Arctic economies differ from those in tropical regions (cf: Koishi and Suzuki 1984: 26). Some researchers argue that sedentariness and socioeconomic inequalities of the Northern Pacific coastal hunter-gatherers are caused by the storage economy or the interfamilial occupational differentiation (Testart 1982, 1988, Watanabe 1969, 1983, 1988). Others explain the unique Arctic adaptation as an economic continuum between the nomadic and the sedentary adaptation (Krupnik 1993) and account for reindeer herding in terms of carnivorous pastoralism as compared to the milk pastoralism in arid regions (Ingold 1980).

These features precluded discussion of Arctic subsistence in a broader context beyond the different climates and ecological regions. Japanese ecological anthropologist Tanaka (1978: 3) once referred it as an adaptive specialization in high latitudes that appeared relatively late in human history. Even so, he asserts that general theoretical assumptions about foraging economies may be adopted from studies of the hunters-gatherers in the lower latitudes.

Most Japanese anthropologists who study the nomadic pastoralists and the problem of domestication share the viewpoint of exceptionalism. On the issue of how domestication changed the human-animal relationship, Tani (1997) insists the continuous sharing of the home range through many generations both by a human social organization and a herd of animals is crucial for domestication. This sharing enables the humans to control the breeding of the animals and the movements of the herd. By interfering in the relationship between the mother and offspring by separating them, herders establish an artificial relationship with the animals that allows the herders to control the movement of the herd. It is essentially identical to the human-livestock relationship among the nomadic pastoralists.

According to Tani, the reindeer is a half-domesticated animal because herders certainly practice castration as a technique of selection, but they do not involve themselves sufficiently with the mother-child relationship to organize the herd as a unit of movement or a social group for the animal. While a herder may impose on the herd a "peculiar unity which is a discernable congregation with constant membership" (Hazama 2002), such a reindeer herd is a construct of human ownership. Therefore, the relationship of herders to their reindeer is relatively weaker and thinner than the one of the arid nomadic pastoralists, which sometimes involves strong and deep ties, even emotional attachment, toward the livestock. One researcher calls the attitude toward domesticated reindeer similar to the one toward the object of a hunt (Konagaya 1995). These are the exceptionalist views of reindeer herding.

As shown in the typology of reindeer herding in Soviet anthropology (Baskin 2000, Syrovatskii 2000, Vasilevich and Levin 1951), regional and ethnic variations mark reindeer herding in Siberia. The exceptionalist approach has been based pri-

marily on Tundra reindeer herding and a type of *closing herding* as the way of big herd management among the Chukchee and Nenets. The cultural history of reindeer herding (Sasaki 1985, Vainshtein 1970, 1971) postulates that the domestication of reindeer originated in the Altai forest region, where the reindeer is used both as a riding animal and a draft animal. It is a very familiar animal for humans. British anthropologist Tim Ingold (1980) also provides the symmetrical notion of "milch pastoralism" in the Taiga, in which humans and reindeer form an intimate relationship, and "carnivorous pastoralism" in the Tundra, in which humans and the animals are unfamiliar with each other. To find parallels only in Tundra herding is clearly not representative, however.

The previous studies presuppose that domestication must necessarily involve the process of subsistence transformation. While this idea may be true in an evolutional perspective of human history as a whole, ethnographical documentation shows the variety of human subsistence patterns. Matsui (1989) defines the term "semi-domestication" as describing the broader range of subsistence activities between foraging and husbandry, such as protective herding and cultivation with clearance (see also Harris 1996). Rather than focusing on the mode of subsistence, what is needed, in fact, is to look at the way human-nature (animal) relationships are manifested in a local environment.

SYMBIOTIC DOMESTICATION AND THE HUNTER-HERDER CONTINUUM

Additionally, current research encourages an alternative to the exceptionalist approach. The symbiosis model of domestication emphasizes the mutual benefits for both animals and humans afforded by domestication (Russell 2002: 288–9). Based on this, Beach and Stammler introduced the concept of "symbiotic domestication" or "symbiotic domesticity." That is, an animal has an equal advantage with humans; e.g., protection from insects, feeding in a protected environment. These researchers assert that symbiotic domestication is the result of learning that extends beyond one individual lifetime so that selective breeding affects the genetically-encoded consequences (Beach and Stammler 2006: 10, see also the paper of Stammler of this volume).

The term domestication may be defined as a continuous control of breeding of a particular animal population beyond one generation (Nozawa 1986: 66, Russell 2002: 286). This definition is sharply different from the definition of taming as a relationship between a particular person and a particular animal without long-term effects beyond an individual lifetime (Russell 2002: 286). Reindeer herds, even among the Tundra nomads, are protected, and the animal population is bred through selective castration. Therefore, in terms of genetics and morphology, that reindeer is most definitely a domesticated animal.

Reindeer seek out humans, but on the other hand, the animals can survive without humans. This observation is the main reason that a domesticated reindeer's behavior can be characterized as "a broad continuum from great tameness to great ferality" (Beach and Stammler 2006: 8–10).

This broad continuum of behavior is not restricted to reindeer. Some livestock

animals, like horses, also display this range of behaviors, and in some cases, the animals may become feral (Kimura 2007). The crucial difference between reindeer and the others is the circumstances of the animals' habitat. Domesticated reindeer can be found in habitats accessible to the wild population. The geographical areas of the domesticated and the wild animals often overlap, and sometimes the animals share behaviors and genetic similarities (Roed et al 2008: 1849)[2]. The wild populations of domestic livestock, such as horse and cattle, have disappeared. Other domestic animals evolve selectively from the genetic pool of the domestic population or from a kind of genetic manipulation. However, the reindeer are in the stage of evolution in which the genetic pools both of domestic and wild populations may be crossed even now.

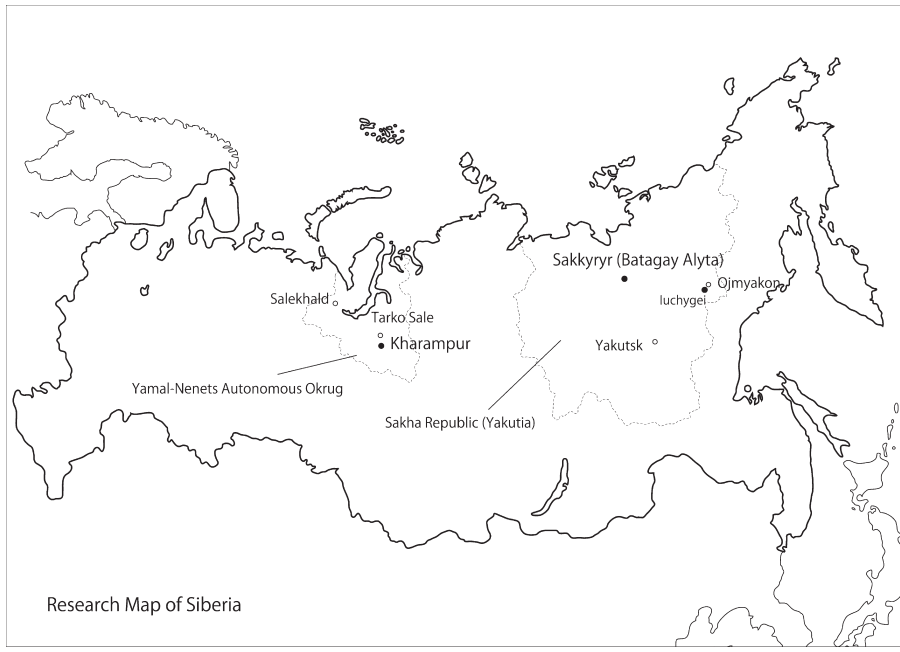
Another theory that argues against the exceptionalist view is "foraging or husbandry as alternative strategies" (Layton 1991) or the "hunter-herder continuum" (Ventsel 2006). Layton suggests that the transition from hunting to herding happened in accord with environmental change, technological innovation and socioeconomic and political change. Ventsel agrees with this theory; he proposes the hunter-herder continuum using the example of the Tundra reindeer herders in the Northwestern Yakutia. This continuum theory can perhaps be located somehow in the research history of Arctic subsistence. For example, I. Krupnik's theory of Arctic adaptation claims that the economic continuum between nomadic inland hunting and the sedentary maritime hunting-fishing represents alternative strategies. The various types of subsistence in the Arctic could have arisen according to environmental and socioeconomic factors along the spectrum of the continuum with nomadic inland hunting at one end of the pole and sedentary maritime hunting-fishing at the other end (Krupnik 1993: 210–213).

A review of the previous research confirms the following assertions: 1) The reindeer is a domesticated animal, not half-domesticated nor tamed; therefore, the notion that hunting and herding is not articulated because the reindeer is not fully domesticated is erroneous, and 2) fully domesticated reindeer allowed people to engage in either hunting or herding, whichever was more desirable given the changes in environment and socioeconomic and political conditions.

What then distinguishes the relationship between humans and reindeer from that of the other pastoralists? As Tani reminds us, herders establish an artificial inter-individual relationship of the animals in order to organize the herd as a unit of movement. Therefore, we must ask what kind of the artificial relationship the reindeer herder organizes. Another question is why the human-reindeer relationship leads to alternative strategies of hunting or herding. In previous studies of Tundra regions, historical facts of the Northwest Yakutian case confirmed this theory of a hunter-herder continuum. However, this question may also be approached by examining how the familiarities between herder and animals enable the hunting-herding continuum through a focus on the ground among cases in the Taiga regions.

The concept of familiarity between humans and animals offers a useful way to explore these questions. Familiarity, quite different from tameness, is the reversible

[2] According to the Ikeya (et al 2009), both wild and domestic fowl (chicken) in the mountainous areas of Thailand also partially overlap the home ranges of the other.



relationship between a human and an individual animal. Tameness goes beyond the levels of individual relationships or even the animal species level; it is an irreversible relationship between humans and animals. In other words, regardless of domestication, a human entertains a certain sentiment toward an individual animal. The type of sentiment reflects the extent of familiarity or extent of indifference to the animal. This sentiment may be projected from the individual animal to all the species or only toward some specific group which the human conceives of.

In the case of reindeer herding among a particular population of animals which exists as a result of genetic selection, or selective breeding, by humans, some herders exhibit a preference for a particular animal apparently for no special reason. They closely associate with that animal, and the animal also appears to understand or respond to the human's will and behavior. Unlike the presuppositions of the previous theories of the human-livestock relationship, such as symbiotic domestication, this concept focuses on the various phases of familiarity even within one species of domestic livestock; those phases result from the interaction between the herder and each animal.

THE HUMAN-REINDEER RELATIONSHIP IN DIFFERENT SETTINGS

The following three cases are drawn from ethnographical data that I gathered between 1994 and 2008: Sakkyryr Eveny, Oimyakon Eveny, and Kharampur Nenets (see Map). The first two cases are people of the same ethnicity; they belong linguistically to the Tungusic groups. The two groups live in similar ecological conditions in the mountain forest region of the eastern part of Siberia, and in both, reindeer herding is oriented to the production of meat (Takakura 2000; 2004, Vitebsky 1990, 2005). In the third case, the Nenets are a completely different ethnic group from the previ-

ous two in terms of linguistics, history, and geography (Khomich 1995, Turutina 2004, Zen'ko 2006). The Nenets, who live in western Siberia and the north European part of Russia, belong to the Samoyed language groups. They are well known as a nomadic pastoralist group with reindeer production in the Tundra.

But in this particular case, the territory of the Kharampur Nenets is the forest, and their main subsistence is river fishing, as well as the breeding of reindeer for transportation. For the past two decades, most of the territory has been exploited for oil and gas development. People catch fish both for their own food and for selling to the local fishery company. Because the historic-cultural settings and current socioeconomic situations of the Eveny and Nenets differ greatly, comparisons are difficult. Nonetheless, the three groups are useful to illustrate the familiarity between humans and reindeer.

Case 1 ***Sakkyryr Eveny***[3] This case is based on observations of a Sakkyryr Eveny reindeer herding team in northern Yakutia within the structure of a state farm system. Six to seven professional herders were engaged in the management of approximately 1500 head of reindeer in the pasture.

The field data, gathered in between 1994 and 1996, illustrates how the Sakkyryr Eveny herders demonstrate various degrees of familiarities with the herd. The most intimate familiarity exists between the herders and the dairy does (*tyhy*[4]), the reindeer they ride (*uuchakh*), and draft reindeer (*yndyy*). Next on the scale of familiarity come the individual reindeer being trained (*takkana*) and the reindeer to be used for meat (*idehe*). For sledging, the animal that leads the team is called *n'ougguhut*, and the followers are called *khos*. Those animals which have been trained are categorized as *symngaggas*, while an untrained animal is called *khangyl*. The general word for domesticated reindeer is *taba,* and a wild reindeer is *kyyl taba*, which is a complex word comprised of "wild" and "reindeer." Within a couple of years of the delivery of the animals into the care of the herders, the whole range of familiarity from close intimacy with an individual animal to the almost feral was well established. Based on the principle difference between wild and domesticated animals, herders employed an elaborate system to articulate the various levels of familiarity and usage.

Herders give individual names to the animals used for milking and riding, those with whom the herder has the most intimate relationship (see Table 1, the list of individual names). The origins of the individual names may be divided basically into four categories: (a) a physical characteristic of the animal; (b) a behavioral characteristic of the animal; (c) the history of the animal; and (d) a personal name. The way of naming implies intimate contact with and observation of each reindeer. The name of a dairy reindeer usually is hereditary, in recognition of the kinship between the mother and daughter, which the herders tend to select for milking. On the other

[3] Much of description in this case is already published in my previous paper (Takakura 2000, 2004), but revised and some new information has been added for this paper.

[4] These terms for reindeer are Sakha words, not the Eveny words. The historically close contacts between the Sakha and the Eveny in this region affected the language situation. The current mother tongue of most of the Sakkyryr Eveny is Sakha.

Table 1. List of the invididual name of reindeer ownerd (or used) by X family in Sakkyryr Eveny (1995)

#	name	meaning	type	notes
1	Altuschana	from the 6th brigade	milking doe	
2	Altuschana	from the 6th brigade	riding	
3	Auguschana	born in August	milking doe	
4	Bokshol	character like a boxer	riding	owener-state farm
5	Bokshol	character like a boxer	riding	
6	Boronkos	from the body colar (boron) = light gray	riding	
7	Chokchogo	from the body colar like a ptarmigan bird (chekchengo)	riding	
8	Elemeschan	from the body colar (elemes)	riding	
9	Hiroki	the individual whom Hiroki (the author of this paper) had trained to ride	riding	
10	Kalida	character like a brave bull	riding	owener-state farm
11	Karatiska	character like a karate wrestler	milking doe	
12	Kharchana	from the body colar like snow (khaar)	milking doe	
13	Khariyana	from the shape of antler like a spruce tree (kharyja)	milking doe	
14	Khukh lenta		milking doe	
15	Khulebshav	like to eat bread (khleb)	riding	
16	Kueregan	from the body colar like a lark bird (kueregej)	milking doe	
17	Kulumakh	from the upper half of body colar – white (kylymakh)	riding	owener-state farm
18	Kurachana	from the body size – small (kyra)	milking doe	
19	Kybahachan	from the body colar of dark gray (kubagaj)	milking doe	
20	Kylaman	from the long-lashed (kylaman)	milking doe	
21	Kylapachitar		milking doe	
22	Kyrigej	from the body colar like a lark bird (kueregej)	milking doe	
23	Maganchaan	from the body colar – white (magan)	milking doe	
24	Naskura	from the hoof colar – white	riding	
25	Naskura	from the hoof colar – white	milking doe	
26	Olishka	from the favorite girl name (Oliga)	riding	owener-state farm
27	Pavlusha	from the name of the owener (Pavel)	riding	
28	Pavlusha	from the name of the owener (Pavel)	milking doe	
29	Sattichana		milking doe	
30	Sokkol	from the body colar like a falcon (sokol)	riding	
31	Tulkchana	from the body colar like a snow bunting bird (tuluk)	milking doe	
32	Turlaina	the individual who lost the mother (tulajakh)	milking doe	
33	Turlaina	the individual who lost the mother (tulajakh)	milking doe	
34	Ulakhand'a	from the body size – big (ulakhan)	milking doe	
35	Valyuta	from the high quality of velvet antler which associate with the foregin money (valiuta)	riding	

hand, a castrated animal is a different matter, and the intimacy between a human and a riding reindeer exists for only one generation. However, familiarity does not mean the animals always behave in the prescribed manner towards humans. Notably, the intimate reindeer for the most part allow the herders to touch them directly. For example, when herders give salt to the reindeer, most of milking does and some of riding deer approach the herders and take the salt from their hands. Herders can easily catch these reindeer by hand.

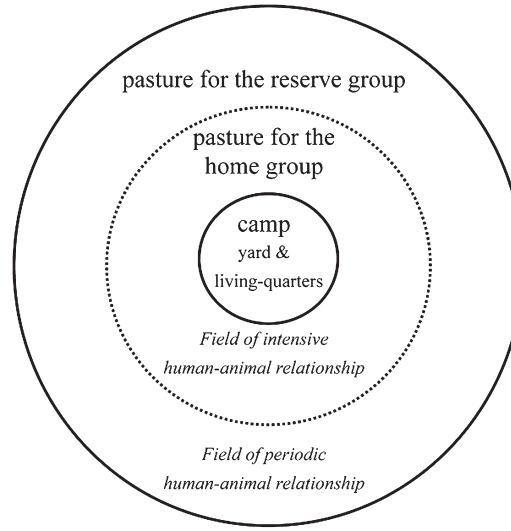


Fig. 1. Spatial model of pasture and camp

Nonetheless, if the most intimate animals remain with the other reindeer, their behavior often changes. Herders need to catch them with a lasso. Conversely, even some meat reindeer may approach a human camp in order to escape mosquitoes in summer and to imbibe human urine in winter for the salt the animals need.

A herder further divides the herd into a home group (*d'ie tabalara*) and a reserve group (*suuma*) (Takakura 2004: 55, Takakura 2000: 141)[5]. The two categories are likely based on behavioral features of domesticated reindeer. The members of the two groups are not fixed, but rather, the groups are normative and performative categories for herders. The dairy females and the riding and draft animals make up the home group; the meat deer comprise the reserve group. In fact, although herders make strong efforts to divide the herd in this fashion, the behavior of the reindeer does not always permit neat categorization. Therefore, the home group usually consists mostly of intimate reindeer and a few that are not so intimate. The reserve group, while including many of the non-intimate meat reindeer, also contains some of the intimate ones. That kind of group is usually not well integrated but rather is scattered into several populations.

The key to controlling herd movement is the dual structure of these groups. The home group is placed near the camp, and the reserve groups surround the outer areas of the camp. Every day the herders drive the home group to the camp where they catch the riding deer. The mounted herders then patrol the surrounding reserve groups in order to prevent the reindeer from going further afield or dispersing more widely (See Figure 1).

When the herders move the herd seasonally to bring the reindeer to new pastures, this dual structure is temporarily abandoned and the herd is unified under the herd-

[5] Other anthropologists also recognize this kind of functional grouping inside the reindeer herd (Stammler 2005: 65, Yoshida 2003: 43). Among them, the concept closest to mine is the set of "byk" herd and "kor" (Dwyer and Istomin 2008: 525-526).

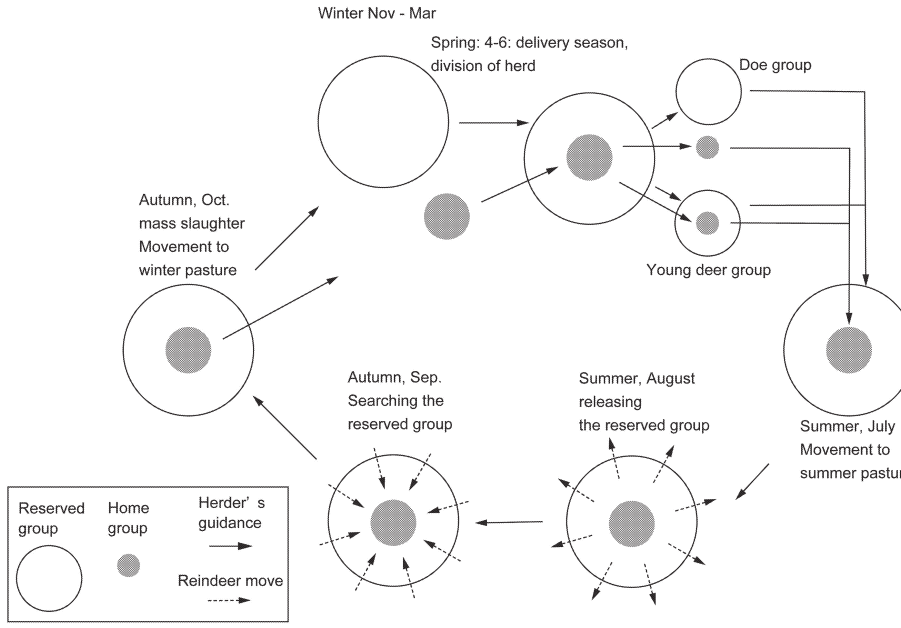


Fig. 2. Seasonal migration and structure of reindeer herd

er's control. When they reach their destination with the herd, herders release the animals and start to focus once again on only the home group for daily herding. Figure 2 shows the seasonal pattern of the herd structure. During the spring and autumn, herders try to keep the home group and reserve group unified; however, in summer and in winter, they completely divide the two groups. While a herder repeatedly gathers together the home group once a day during these seasons, the reserve groups are allowed to range freely. During the off season, herders spend much of their time hunting and fishing or repairing fences and enclosures.

The most crucial daily activity of Sakkyryr reindeer herding is maintaining the integrity of the home group. On principle, reindeer do not stay overnight in the herders' camp. Instead, the first thing herders do each morning is to search for the home group and drive it to the camp. Herders catch some of riding and draft animals for that day's work, but in the evening they release those animals and let them leave the campsite. The day-to-day herding activities involve several interactions between the humans and the animals. The herders gather, catch, place, and release the animals. Animal behaviors corresponding to these human activities are moving on, grazing, resting, and departing. As a result of the herders' repeated cycle of gathering in the morning and releasing in the evening, the home group tends to range relatively close to the campsite.

This pattern of gathering and release is applicable not only to the Sakkyryr but also to the Oimyakon Eveny and the Kharampur Nenets.

Case 2 ***Oimyakon Eveny*** This case is based on observations of a reindeer herding team working in a state farm in Iuchygei village of the Oimyakon district,

Table 2. Timetable of herding activities

Oimyakon Eveny's herding activities on 31 March 2007:

gathering	12:05	Herders started the searching for the herd of reindeer.
	12:30	Herders found the herd in pasture.
	12:45	The herd was lead into the corral inside the campsite.
catching	14:07	Herders started to catch some reindeer.
	15:50	Twenty one heads of reindeer were caught by herders.
releasing	18:25	Herder left the campsite to lead those reindeers used on this day.
	18:40	Herder found the releasing point of place for those reindeer and then releases them.
	18:50	Herder confirms that those released animals were approaching to the herd.

Kharampur Nenets' herding activities on 10–11 March 2008

gathering	unknown	Herders started the searching for home group of reindeer.
	9:30	Herders drove the herd into the campsite by snowmobile.
catching	9:30	Herders started to catch some reindeer.
	13:10	Eight reindeer were caught by herders.
releasing	17:35	Herder left the campsite to lead caught reindeers for next day.
	17:55	Herder found the releasing point of place for the reindeer and then let them freely with the long rope.

which I visited in March 2007.

Six herders are usually assigned to this team, but because it was still winter at the time of my visit, only three herders, a father and his two sons, were engaged in the management of the herd. Together with the father's wife, a daughter, and a younger brother, they all stayed at a lodge house with a small corral in the winter pasture.

The team's reindeer numbered 1400. During the winter season from the end of November to early April, they divided the herd into a home group and a reserve group, with daily herding required only for the home group (see also Figure 2). The home group was made up of approximately 80 animals, including mostly trained reindeer, such as riding and draft animals, and milking does.

The daily herding activities of the Oimyakon were the same as with the Sakkyryr: gathering, catching, placing, and releasing. On March 31, 2007, the activities in the camp are documented as follows. To understand these activities in a very real sense and for purposes of comparison, the time of each activity is noted (See Table 2).

A herder and his younger sister started the gathering activity, leaving the campsite on foot to search for the home group at 12: 05. After the herder found the two riding reindeer by the sound of their bells, he scattered mixed fodder at 12:30. Among the approaching reindeer, he caught one riding deer named *Tuzaty* by hand. The sister rode the deer and started to drive the group into the campsite. The herders and the home group reached the campsite at 12:45 and the herders put the group of animals into the corral. After a break, from 14:07 until 15:50 all the people at the campsite were catching the deer. In this time, they caught 21 reindeer—one four-year-old animal that had been castrated for training and 20 draft animals. Other than

Fig. 3. The release activity of the reindeers used on that day (March 31, 2007, Oimyakon, Sakha Republic, photography by Hiroki Takakura)

these reindeer, the rest were released from the corral and then sent away from the campsite.

Of the 21 animals that were captured, one was to be trained as a draft animal; six were to be used for work that day; and 14 were scheduled for work the next day from the early morning. The next day's work was the preparation of food supplies for the moving of the herd in the spring and early summer. They bring such staples as grain, pasta, sugar, and cigarettes from the winter campsite and secure them in special storage stations along the route to the summer pasture. Because they would be transporting many supplies, they would need 14 deer. Meanwhile, the young sister and a herder used six animals for transportation by sledge until the evening.

In the evening at 18:25, a herder left the campsite on foot to lead those reindeer away from the camp. At 18:40, he stopped at the foot of the hills and found the rest of home group on the slope and released the six reindeer to rejoin the group (see Figure 3). Then the herder checked to confirm that the released animals were approaching the rest of group, and at 18:50 he left for the campsite. The reindeer for the next morning's work were brought a bit away from the campsite and individually tethered to trees with ropes five to six meters long.

In summary, daily work activities on this particular day included 40 minutes spent gathering (from 12:05 to 12:45); 103 minutes spent catching (from 14:07 to 15:50); and 15 minutes spent releasing the animals (from 18:25 to 18:40). The herders did not place the animals because no grass or lichen was present in the vicinity of the winter campsite. This pattern of the day-to-day activities of herding is also same among the Sakkyryr Eveny.

Case 3 ***Kharampur Nenets*** During the 18th century, Nenets in both the Tundra and the Taiga engaged in hunting and fishing, while simultaneously tending

small herds of reindeer. With the disappearance of wild reindeer from the Tundra, the Nenets adapted by becoming large reindeer herd nomadic pastoralists. However, the Nenets in the southern forest zone continue to live unchanged; their main subsistence depends on river fishing and on small herds of reindeer (Khomich 1995: 51–61, Prokof'eva 1964: 551).

The last case includes observations of the camp of Kharampur Nenets in the forest-Tundra ecological region, in the Yamalo-Nenets region, in March 2008. This group practices the forest type of reindeer subsistence. One of the well known classifications in Siberian anthropology, the forest type features a complex economy of hunting, along with the herding of a small number of reindeer to be used as draft animals. The Tundra type is predominant in large scale pastoralism, mainly for food.

Three households resided in this campsite, and all members were somehow kin to the others. In terms of their social organization and residential patterns, there were almost no similarities to the state farm system of the Socialist regime.

The group mainly engaged in river fishing for subsistence and kept small numbers of reindeer, as well. A fishing factory had been opened during the Soviet era, and more recently, gas and oil fields were being established. These created a big demand for fish for workers. Throughout the Soviet period until the present, the group practiced a typical Taiga pattern of reindeer subsistence—the herding of a small number of reindeer, as well as fishing and hunting.

Because of the recent introduction of the snowmobile, the people do not often use reindeer as a mode of transportation. Nonetheless, herders recognize the individual animals in their herds. Table 3 is a list of the individual reindeer which a herder recited one day. It includes information about the animal's sex and age, along with

Table 3. List of Individual name of reindeer in Y camp of Kharampur Nenets (2008)

#	name	sex	age	owner	family number
1	Netmeia	doe	4	Kolia	1
2	Aiu	doe	22	Miyu	3
3	Varabi	doe	2	Kolia	1
4	Pepsikora	doe	4	Viktor	2
5	Tun"stan	doe	15	Miyu	3
6	Nina	doe	31	Viktor	2
7	Orok	doe	6 or 7	Viktor	2
8	Antiropa	doe	4	Oksana	1
9	Kulbai	castrated male	6	Sergei	1
10	Liupkin	castrated male	10	Andrei	1
11	Pushkin	castrated male	6	Yura	3
12	Verepka	doe	11	Viktor	2
13	Posono	castrated male	26	Kolia	1
14	Diana	castrated male	4	Sergei	1
15	Varabi	doe	4	Viktor	2
16	Singacheta	doe	2	Tat'iana	1
17	Parkanti	doe	9	Yura	3

the name of the owner. He identifies each animal by face and by body type; he also recognizes the individual behavior of each animal. Some of the mother-child relationships are also known. As shown the column labeled "Family" in Table 3, the number signifies who lives together in this campsite. The closest intimacy between a person and a reindeer is embedded in individual recognition. A herder recognizes all the individual reindeer belonging to members of the camp and the reindeer's owners[6].

Although herders are easily able to recognize individual animals, the spatial relationship between human and reindeer depends on the individual animal. Some animals voluntarily approach the campsite in the morning, and humans can easily catch them by hand, especially if the human starts to feed them. On the other hand, other animals must be driven to the campsite by herders on snowmobiles, and it can be difficult to catch the animals even with a lasso.

The catching activity on March 11 is described as follows (see Table 2). Because a sledge race was be held as part of a local festival in the middle of March, the herders needed to prepare the strong draft reindeer. They drove approximately 50 heads of reindeer to the campsite at 09:30, and then eight persons started to catch them by lasso. This work could be considered gathering and catching, as it is the same with the Sakkyryr and Oimyakon Evenys. This activity continued with some breaks until 13:10. A total of 8 animals were caught. Compared to the catching activity of the Oimyakon Eveny, this group was not very efficient. However, efficiency in catching may not be so important because the corral was increasingly being used as a tool for labor efficiency[7]. Moreover, these herders never thought of their reindeer as wild, even those animals that were hard to catch. Nenets generally dislike interbreeding of domestic and wild reindeer (Khomich 1995: 62).

It seems quite important to note that the forest Nenets also engage in releasing activity. On March 10, they caught the four deer already mentioned, and then they tethered those animals to snowmobiles and left the campsite at 17:35. They slowly drove the snowmobiles with the animals in tow and at 17: 55 reached the place where the herders separated from one another. One end of a long rope was looped over the neck of each reindeer and the other end, over a log. Then, herders buried the rope inside the snow. This activity illustrates again that herders always try to create some distance between the campsite and the reindeer.

CLOSE FAMILIARITY AND ADJACENT SPACE

These three case studies share some interesting characteristics: (1) Herders achieve intimacy with particular animals which serve a useful role in the lives of the humans; and (2) these more useful animals tend to be placed near the human residential space but not on the site itself. The dual structure of the herd is based on this human-animal relationship (Sakkyryr Eveny and Oimyakon Eveny). The intimate reindeer mainly are selected for the home group, and the meat reindeer are selected for the

[6] A herder cuts the ear of reindeer to indicate ownership. This is related to property relations in between families.

[7] There was no interim-corral made of sledges nor did herders use pipelines, for example, as "natural barriers" for catching as the Yamal-Nenets do (personal communication with F. Stammler).

reserve group. The forest Nenets, on the other hand, maintain a herd of only the home group, although the introduction of the snowmobile has decreased the practical value of their draft animals as a means of transportation. In place of a reserve group of reindeer, these people rely on river fishing as source of food and cash income.

These studies indicate that the following assertions are probably valid: (1) Herders sometimes focus on particular animals among the domesticated population and increase the degree of familiarity with those animals; and (2) for the purpose of controlling herd movement, herders adjust from adjacent to remote the spaces accessible to their various animals with the human residence at the center. The wider the diversity of familiarity among a herd or a domesticated population, the more distant the space the human needs to cover. The Sakkyryr and Oimyakon Eveny cases are examples of groups with the most differentiation of familiarities among the reindeer herd, yet even they utilized the dual structure to organize the herd and used extensive space for herd management. On the other hand, the Kharanpur Nenets displayed the relatively homogenous familiarity of their reindeer and they used adjacent space[8].

Herders achieve close familiarity with particular livestock and place them in space adjacent to their residence, which is the core of forest reindeer herding. If the herder preserves this human-animal relationship, the choice of a main activity to produce food depends on the environmental, socioeconomic, political circumstances, and personal preferences. During the Soviet Socialist period, the government attempted to introduce to the Siberian indigenous peoples a model for an animal industry to produce meat. Most of the herders could accept the system and the corresponding technological innovations. Other herders, however, chose fishing and hunting as the main sources for subsistence, without relinquishing their domesticated reindeer. Thus, the level of familiarity and the use of adjacent space are keys to enable the hunter-herder continuum in the Arctic forest region.

RECONSIDERATION OF LARGE ANIMAL DOMESTICATION AND SAKHA HORSE-CATTLE PASTORALISM

Domesticated reindeer, which generally do not care to be touched by humans, are usually restricted to space outside human space. This practice does not occur only in reindeer herding. As Baskin (1974: 540) once said, "The free pasturing of domestic ungulates without human control has a number of practical implications for the keeping of reindeer, yaks, camels, and horses." Therefore, the issue of the control of the herd's movement needs to be reconsidered in terms of the size of the livestock.

Previous research, in particular research that focused on the herding of horses in Mongolia and Central Asia, indicates that the control of the herd's movement is similar for reindeer. A herd of horses consists of many horse bands or units including a single male with a harem of females. These bands are allowed to roam freely, far from the campsite; many herders regard their behavior as "wild" (Konagaya 1989,

[8] This is not true among all Nenets. Stammler (2005, Chapter 3) also describe the Tundra (Yamal) Nenets as the same as the Sakkyryr and Oimyakon Evenys.

Shnirelman 1996, Vainstein 1980). The situation is the same in Sakha or among the horse and cattle pastoralists in Siberia (Takakura 2002). The term "distant herding" was coined to differentiate an intentional technique for controlling the herd from simple free range management. This concept may be paired with "proximate herding," which is applicable to controlling the movement of herds of small-sized livestock[9]. In this case, herders and livestock share the living quarters as a rest space. In the morning, herders drive their animals from the camp to pasture and water sites, and in the evening, they return the animals to the camp, the typical day-trip herding.

Again, as Tani suggests, herders appear to construct an artificial inter-individual relationship with animals to organize the herd as a unit of movement. Another way to say this is that in the unified structure of the herd, its purpose as a unit of economic management for humans and its purpose as a unit of livelihood should overlap. This principle is applicable to horse herding. Sakha horse herders carefully intervene in the selection of animals for the harem, even at times directly paying a matchmaker to organize the harem (Takakura 2002). However, herders do not practice day-trip herding, and the behavior of the horses does not reflect the intimacy of the riding horses.

The theory of symbiotic domestication permits the horse some rewards for its interaction with humans. For example, the horse might receive nutritional support during the spring or the birthing season, and the pasture is safer because humans try to exterminate predators, rewards which are almost the same for reindeer. Cattle pastoralism, on the other hand, occupies a unique position in this respect. Unlike horses, Sakha cattle reside in sheds next to the human settlement. When the human opens the door of the shed each morning, the cattle disperse to seek grass and water with or without the herdsman. Needless to say, the human intervention in the breeding of cattle is the same as the horse. These examples illustrate well the irregular behavior of livestock towards humans, even after continuous human intervention in breeding over several generations.

Clearly, the size of an animal is important neither for domestication nor for management of the herd. The effect of domestication on animal behavior appears at the species level in a local environment which is the locus of a particular human population and a particular animal population. In terms of symbiotic domesticity, not only biological features of the animal but also animal-personhood that influences things on the individual level. For the further understanding of that effect, we need to correlate species, herd, and individual to other factors. Species corresponds to domestication, the herd corresponds to control, and the individual animal corresponds to familiarity. The range of familiarity with that animal is determined at the species level in a particular local environment. The quality of familiarity is determined at the individual level through daily interactions and the perception of the animal's personhood. The herd is crystallized as a combination of the range and quality of familiarity.

[9] For a discussion of the similarity and difference between my set of concepts the previous corresponding one, (closing/loose herding), please refer to Takakura 2004: 58-59.

DISCUSSION

The reconsideration of the domestication of reindeer in Arctic and sub-Arctic leads to a questioning of the exceptionalism of Arctic pastoralism. The exceptionalist approach is based on only Tundra reindeer herding and on a comparison with the other domestic livestock, an approach which enhances our understanding of the evolutionary approach to human history as a whole. However, it fails to explain the reason that diversified human-reindeer relationships are developed in different times and loci. Therefore, I began to consider whether hunting and herding could be continuous in the subsistence pattern, regardless of the level of domestication.

For humans, the most important benefit of reindeer domestication is acquiring a means of transportation. Although some ethnic groups milk the does, the amount is limited, and not all reindeer people practice dairying. Reindeer may provide a stable supply of meat, but reindeer to be used for meat do not necessarily have to be domesticated. The shortage of milk and the large size of the animals if they are to be used for transportation are biological conditions for the domestication of reindeer.

The benefits that accrue to humans from domestication are different for each animal. In Mongolia, the domestication of the horse is not enough to make the animal a secure source of food because the animal's reproductive power is relatively low and the animal matures rather slowly. Therefore, it is also important to have a flock of sheep, whose biological traits and conditions are quite different from the horse's (Imanishi 1995: 65). As the climate and ecological conditions allow some groups to keep only reindeer as a domesticated species, they need to devise alternative strategies to attain certain benefits, such as hunting and fishing or husbandry of meat reindeer based on the transportation relationship with that animal.

The need to devise alternative strategies may be confirmed from an historical analysis and analysis of the current situation of the northwestern Yakutia of Eastern Siberia from the 17th to the 19th centuries. The Turkic Sakha, whose traditional subsistence is husbandry of horses and cattle and hunting in the sub-Arctic middle basin of the Lena River, migrated into the Arctic region of the lower Olenek River towards the end of the 17th century and changed their subsistence pattern to reindeer husbandry and hunting. When they migrated, the Tungusic Evenki and some Russian hunters (*promyshlenii*) were already living in the region. The Sakha abandoned horse and cattle husbandry and instead took up reindeer herding which was introduced to them through cultural contacts with the Evenki. The ratio of reindeer herding to hunting was dependent on the size of the wild population of reindeer (Gurvich 1977, chap.1, see also Ventsel 2006). In the 18th century, Sakha in this region generally depended mostly on wild reindeer hunting. From the end of the 19th century, the number of their domesticated reindeer increased and the animals became an important source of food (Gurvich 1960: 69, Khazanov 1983: 113). In addition, the current situation of these people also confirms the transformation from husbandry to hunting of reindeer in this region. The local population in the Olenek district turned from reindeer husbandry to hunting wild reindeer and fishing as their main ways to procure food after the collapse of the Soviet Union (Takakura 2008).

The hunter-herder continuum in Siberia is not an exceptional adaptation; rather it

is the result of human choice in response to environmental change and socioeconomic conditions. The biological conditions necessary for the domestication of reindeer and the ecology of their habitat are among those factors. As Layton (1991) suggests, the transition between hunting and gathering and specialized husbandry should not be regarded as a one-way process. It is rather "constructed as adaptive under certain natural or social conditions…loss of husbanded resources may favor hunting and gathering, while degradation of the environment and population growth tend to render intensive husbandry irreversible" (Layton 1991: 261–262). It is noteworthy that ever since domestication led to development of a new way for humans and animals to relate, the range of subsistence choices has continuously increased up to now.

When the first domestication of animals in human history occurred in western Asia, the range of subsistence was first formed as two opposite poles: hunting-gathering and specialized husbandry. But once the latter was established, other forms of subsistence such as commerce, long-distance trade, and market exchanges developed. When any social organization faces certain ecological constraints and socio-economic-political settings, it adaptively manages to invent a particular combination of subsistence choices. The combination of choices may seem random at first sight, but actually it forms a "subsistence continuum" within a specific context. This new term is defined by the particular set of the range of possible subsistence patterns, such as hunter-gatherer, pastoralist, farmer, trader, and any other livelihood. Needless to say, the word "subsistence" is meant to be understood in a broad sense: a source or means of obtaining the necessities of life rather the conventional anthropological term which opposes the market economy. The hunter-herder continuum is such a "subsistence continuum." The hunter-herder continuum theory (Ventsel) and the subsistence continuum theory introduced herein clearly explain the reason why hunting and herding are continuous among the northern pastoralists rather than exceptionalist among Arctic reindeer herders.

Spencer's concept of the pastoral continuum in East African cases is persuasive. He identifies two different pastoral continuums that were formed according to the environmental and historic-political factors. The Islamic pastoral continuum, which ranged from the Middle East to the Sahara and northward in Africa, is characterized by the dynamic interrelations between nomads and farmers. Its history relates to commerce, long distance trade, and urbanization in the region. On the other hand, a non-Islamic pastoral continuum is focused on areas that are "culturally islands onto themselves" despite trade relationships with local farmers (Spencer 1998: 257–258). In the latter case, the population "face[s] a spread of choices from free-ranging nomadism to a more sedentary commitment to farming" according the various settings (Spencer 1998: 20). It may be called a herder-farmer continuum in my lexicon.

As well as Spencer, some studies also regard the pastoralism as a continuum from nomadic pastoralism to sedentary agriculture. A given pattern of subsistence economy among East African pastoralists is formed according to the amount of the rainfall (Smith 1992: 10) or to the environmental instability and socio-economic factors (Gray et al 2002: 125). The ranges of "subsistence continuum" in this paper further could extend beyond the one from pastoralism to agriculture under the condition of

not only the subsistence economy but also the market economy. An ethnographical report shows that the case possibly classified to the non-Islamic pastoral continuum includes a hunting. Recently, Banna or Ethiopian pastoralists have begun to rely for their subsistence on hunting wild game, according to the intrusion of the state authority and market economy (Masuda 2005). Any particular subsistence pattern embodied in a given space and time matrix is a projection corresponding to the multi-polarized continuums, which is the essential idea of the 'subsistence continuum.'

CONCLUSION

We should regard hunter-gatherers, or pastoralists who now appear to be such, as a result of adaptation in a particular space and time matrix against each particularly formed subsistence continuum. What characterizes the core of the pastoral population is their own strategies for differentiating familiarities with animals through the control of breeding and movement and the various subsistence patterns. The climate, ecological conditions, and socioeconomic-political institutes limit the choice of strategies.

Familiarity is established by the herder, who interacts with the environment and the social setting. The range of familiarity is shaped not only for human purposes but also by the character of the animal which has been conditioned both by the local ecology and genetics. The differences among levels of familiarity with a particular animal determine the structure of the herd of livestock. My argument supports the claim that both arctic and arid—i.e., all pastoralists—relate to their animals in the same way. Each strategy for forming various levels of familiarity works to bring about the diverse ways of herding and the pastoral way of life, as well as the complexities of subsistence.

As a result, many pastoralists in the arid region adopt the multi-species livestock strategy. However, they could just as easily devise different subsistence patterns, emphasizing either farming or trading. The subsistence continuum must be formed in different settings according to the environment and prevailing social conditions. The hunter-herder continuum in the Arctic region is one of these; it does not form simply because of the Arctic location.

REFERENCE

Baskin, L. M.

1974 Management of Ungulate Herds in Relation to Domestication. In *The Behaviour of Ungulates and its Relation to Managemen*t, ed. V. Geist and F. Walther, 530–541. Morges, Switzerland: International Union of Conservation of Natural Resources.

2000 Reindeer Husbandry/Hunting in Russia in the Past, Present and Future. In *Polar Research* 19–1, 23–29.

Beach, H. and Stammler, F.

2006 Human-animal relations in pastoralism. In *Nomadic Peoples* 10–2, 6–30.

Dwyer. M. and Istomin, K.

2008 Theories of nomadic movement: A new theoretical approach for understanding the movement decisions of Nenets and Komi reindeer herders. In *Human Ecology* 36, 521–533.

Gray, S., Leslie, P. and Akol, H.

2002 Uncertain disaster: environmental instability, colonial policy, and resilience of East African

pastoral system. In *Human Biology of Pastoral Populations*, ed. Leonard, W. & M. Crawford, 99–130. Cambridge: Cambrdige UP.

Gurvich, I. (Гурвич, И.)
1960 Эвены камчатской область [Evenys in Kamchatka]. In *Trudy instituta etnografii* 25, 42–55.
1977 *Культура северых якутов-оленеводов* [The Culture of Northern Yakuts Reindeer herders]. Moscow: Nauka.

Harris, D.
1996 Domesticatory Relationships of People, Plants and Animals. In *Redefining Nature: Ecology, Culture and Domestication*, ed. R. Ellen and K. Fukui, 437–463. Oxford and Washington, D.C.: BERG.

Hazama, I.（波佐間逸博）
2002 家畜ヤギが形成する「輪郭のある群れ」と放牧管理 ["Peculiar unity which is a discernable congregation" formed by domestic goat and its herd management]. In *Dobutsu kokogaku* 19, 73–91.

Ikeya, K. et. al.（池谷和信）
2009 「野鶏」の飼い慣らしは可能か？ タイ北部の山地農民の事例 [Is it possible to tame wild chicken?: The case of hill farmer in Northern Thai]. In *Domestication: sono minzoku seibutsugaku teki kenkyu*, 225–246. Osaka: National Museum of Ethnology.

Imanishi, K.（今西錦司）
1995 [*1945–46*] 遊牧論その他 [Nomadic pastoralism and so forth]. Tokyo: Heibonsha.

Ingold, T.
1980 *Hunters, rastoralists and ranchers: Reindeer economies and their transformations*. Cambridge: Cambridge University Press.

Khazanov, A. M.
1983 *Nomads and the outside world*, trans. J. Crookenden. Cambridge: Cambridge University Press.

Khomich, L. (Хомич, Л.В.)
1995 (1966) *Ненцы: Очерки традиционной культуры* [Nenets: outline of traditional culture]. St-Petersburg: Russkii dvor.

Kimura, R.（木村李花子）
2007 野生馬を追う―ウマのフィールド・サイエンス [Following the feral horse: field science of horse]. Tokyo: Tokyo University Press.

Koishi, H. and Suzuki, T.（小石秀夫・鈴木継美）
1984 栄養生態学 [Nutrition ecology]. Tokyo: Kowa shuppan.

Konagaya, Y.（小長谷友紀）
1995 狩猟と遊牧をつなぐ動物資源観 [A view toward animal bridging hunting and nomadic pastoralism]. In *Koza chikyu ni ikiru (3) Shigen he no bunka tekio*, ed. R. Ohtsuka, 69–92. Tokyo: Yuzankaku.

Krupnik, I.
1993 *Arctic Adaptations: Native Whalers and Reindeer Herders of Northern Eurasia*. Hanover and London: University Press of New England.

Layton, R. et al
1991 The transition between hunting and gathering and the specialized husbandry resources. In *Current anthropology* 32–3, 255–274.

Matsui, K.（松井 健）
1989 セミ・ドメスティケーション：農耕と遊牧の起源再考 [Semi-domestication: reconsider the origin of cultivation and nomadic pastoralism]. Kyoto: Kaimeisha.

Masuda, K.（増田研）
2005 「野生の宝庫」の行方 [Current setting of "wild treasure"]. In *Shakaika sareru seitai shigen: Etiopia taema naki saisei*, ed. F. Katsuyoshi, 151–178. Kyoto: Kyoto University Press.

Nozawa, K.（野澤 謙）

1987 「家畜化の生物学的意義」[Biological significance of domestication]. In *Bokuchiku bunka no genzo*, ed. K. Fukui and Y. Tani, 63–108. Tokyo: Nippon hoso shuppansha.

Prokof'yeva, E. D.

1964 The Nentsy. In *The peoples of Siberia*, ed. M. Levin and L.Popov, 547–570. Chicago and London: The University of Chicago Press.

Road, K. et al

2008 Genetic analyses reveal independent domestication origins of Eurasian reindeer. In *Proceedings of the Royal Society B*. 275, 1849–1855.

Russell, N.

2002 The wild side of animal domestication. In *Society and Animals* 10: 3, 285–302.

Sasaki, S.（佐々木史郎）

1985 トナカイ飼育の歴史 [History of reindeer husbandry]. In *Minpaku tsushin* 30, 85–95.

Shnirelman, V. et al

1996 Hooves across the steppes: The Kazak life-style. In *Horses Through Time*, ed. S. Olsen, 131–152. Boulder: Roberts Rinehart Publishers for Carnegie Museum of Natural History.

Smith, A.

1992 *Pastoralism in Africa: origins and development ecology*. London: Hurst & Company.

Spencer, P.

1998 *The pastoral continuum: the marginalization of tradition in East Africa*. Oxford: Oxford University Press.

Stammler, F.

2005 *Reindeer Nomads Meet the Market: Culture, Property and Globalisation at the End of the Land*. Vol. 6. Halle Studies in the Anthropology of Eurasia. Münster: Lit publishers.

Syrovatskij, D. (Сыровацкии, *Д.*)

2000 *Организация и экономика оленеводческого производства* [Organization and economy of reindeer production]. Yakutsk: Sakhapoligrafizdat.

Takakura, H.

2000 社会主義の民族誌—シベリア・トナカイ飼育の風景 [Ethnography of socialism: Landscape of reindeer herders]. Tokyo: Tokyo toritsu daigaku shuppankai.

2002 An Institutionalized Human-Animal Relationship and the Aftermath: The Reproductive Process of Horse-Bands and Husbandry in Northern Yakutia, Siberia. In *Human Ecology* 30–1, 1–19.

2004 Gathering and Releasing Animals: Reindeer herd control activities of the indigenous peoples of the Verkhoyansky Region, Siberia. In *Bulletin of National Museum of Ethnology* 29(1), 43–70.

2008 エヴェンキ、トナカイ飼育の崩壊と狩猟への転換 [Evenkis, the collapse of reindeer herding and change into hunting]. In *Kikan minzokugaku* 124, 8–13.

Tanaka, J.（田中二郎）

1978 採集狩猟民の比較生態学的考察 —— とくにブッシュマンとピグミーの狩猟を中心として [Comparative ecological consideration of hunter-gatherers: Bushman and Pigmi]. In J*inrui no shizenshi*, ed. J. Itani and R. Harako, 3–27. Tokyo: Yuzankaku.

Tani, Y.（谷　　泰）

1986 Two Types of Human Interventions into the Sheep Flock. In *Domesticated Plants and Animals of the Southwest Eurasian Agro-Pastoral Culture Complex, II*, ed. Y. Tani, 1–42. Kyoto: RIHS, Kyoto University.

1989 The Geographical Distribution and Function of Sheep Flock Leaders. In *The Walking Larder*, ed. J. Clutton-Brock, 185–199. London: Unwin Hyman.

1997 神・人・家畜 牧畜文化と聖書世界 [God, human and livestock: Pastoralism and Bible]. Tokyo: Heibonsha.

Testart, A.

1995 (1982) *Les chasseurs cueilleurs, ou, L'origine des inégalité*, Japanese trans. H. Yamanouchi. To-

kyo: Hosei University Press.
1988 Reply. In *Current anthropology* 29–3, 490–491.
Turutina, P. G. (Турутина, П. Г.)
2004 *Лесное ненцы. Сказания земли пуровской* [Forest Nenets, Story from Purov land]. Novosibirsk: Izd-vo SO RAN.
Vainshtein, S. I. (Вайнштеин, С. И.)
1970 Проблема происхождения оленеводства в Евразии. 1 [Problem of origin of reindeer husbandry in Eurasia (1)]. In *Sovetskaia etnografiia* 1970–6, 3–14.
1971 Проблема происхождения оленеводства в Евразии. 2 [Problem of origin of reindeer husbandry in Eurasia (2)]. In *Sovetskaia etnografiia* 1970–5, 37–52.
1980 *Nomads of South Siberia*. Cambridge: Cambridge University Press.
Vasilevich, G. M. and Levin, M. G.
1951 Типы оленеводства и их происхождение [Types of reindeer husbandry and its origin]. In *Sovetskaia etnografiia* 1951–1, 63–87.
Ventsel, A.
2006 Hunter-Herder Continuum in Anabarski district, NW Sakha, Siberia, Russian Federation. In *Nomadic Peoples* 10–2, 68–86.
Vitebsky, P.
2005 *Reindeer people. Living with animals and sprits in Siberia*. London: Harper Collins.
1990 Centralized Decentralization: The ethnography of remote reindeer herders under Perestroika. In *Cashiers du Monde russe et sovietique*, XXXI (2–3), 345–356.
Watanabe, H.
1973 *The Ainu Ecosystem: Environment and Group Structure*. Seattle: University of Washington Press.
1978 Classification of Food for Hunter-gatherers. In *Minzokugaku kenkyu*, 43–2, 111–137.
1983 Occupational differentiation and social stratification: the case of northern pacific maritime food-gatherers. In *Current anthropology* 24–2, 217–219.
1988 On the social anthropology of Hunter-Gatherers. In *Current anthropology* 29–3, 489–490.
Yoshida, A.（吉田　睦）
2003 トナカイ牧畜民の食の文化社会誌 : 西シベリア・ツンドラ・ネネツの生業と食の比較文化 [Ethnography of Food of Reindeer Herder: Comparative culture of subsistence and food of Tundra Nenets in Western Siberia]. Tokyo: Sairyusha.
Zenk'ko, M. (Зенько, М.)
2006 *Сибирские лесные ненцы, историко-этнографические очерки* [Siberian forest Nenets: Historical-ethnographical outline]. Moscow: Basko.

Knowing, training, learning: The importance of reindeer character and temperament for individuals and communities of humans and animals

Terhi Vuojala-Magga

Arctic Centre, University of Lapland, Finland

ABSTRACT

At the beginning of 2000 I started to learn to train male reindeer, training a reindeer takes four years. I worked with two reindeer, Viljami and Ukko-Poika, to the stage where they learned to work as good sledge-reindeer (ajokas) for the tourist industry. In this paper I speak of individual calves, which in these four years grew up to be full-sized castrated males. This study is about learning and co-operation between an animal and a human being. I analyzed the process of taming a reindeer from the context of the inter-relationship of emotions and power. This learning process involves not only animals but human beings, too. While training a semi-domesticated reindeer, one gains a good look at the individual and social behavior of a single animal - on the one hand, with a human being and on the other hand, as a member of a herd. Finally, in the end of the paper I focus on the anthropological discussion on the concepts of knowledge and knowing as attributes of the life-world of reindeer herding societies.

Keywords: Saami, reindeer, tacit knowledge, knowing, situated learning

INTRODUCTION

While I was doing my fieldwork among the Saami people by the Inari (Ánar) and Teno (Tana) Rivers in Inari and Utsjoki regions of Finnish Lapland, Sápmi (Saami homeland) in the mid 1990s, one of my Saami reindeer herder friends, Jouni Saijets, advised me to go to "the depths of the woods". Above all, it was a metaphor rather than a straight comment. This metaphor was very obvious, I hardly knew anything about reindeer herding or fishing in practice or the arts of these livelihoods. Simply, Jouni wanted me to gain a deeper understanding of Saami life and subsistence economies. In the north, reindeer herders often describe their own people according to peoples' behavior and activities; there are reindeer herders who prefer to talk and sit inside the house (*pirttiporomies*)[1], and those who prefer not to talk but to be actively doing various tasks in the woods and on the fells (*poromies)*. However, this does not

[1] The terms in brackets are in Finnish, but these professional terms in reindeer herding originate from Sámi language.

mean that the former are somehow worse or better than the latter. It is commonly known that the knowledge held by quiet forest people is hardly ever transmitted to academic studies conducted by interviewing. This kind of knowledge is situated in the tasks of action and work.

In my case, things just seemed to flow in their own rhythm and after a while I married a reindeer herder and I left my academic world behind for years. Simply there was no time to write or read books, because life itself and work within the seasonal tasks took me to an intensive hold for several years – metaphorically and literally I dived into the depths of the woods. One could ask if I learned to become to be a thoroughbred and skilful member of a reindeer herding society. On the one hand, it can be said that, yes, within these years I have become a full member of the Magga kin and the Kuttura siida (a traditional kinship-based co-operative of reindeer herders), but on the other hand, if we talk about mastering the various skills in reindeer herding, I have just entered the world of skills and I believe that to the end of my life I will just carry on learning.

In this paper I discuss the behavior of an individual reindeer and the behavior and function of a herd as a group of different types of reindeer. Firstly, my main aim was to focus on the learning processes of a reindeer. I argue that the learning processes of a reindeer is a rather wide topic, further, it is more than just the genetic programming within the context of survival of the fittest as it is seen in sociobiology. However, I am not guaranteeing that the behavioral models of reindeer explained in this article should be seen as the only verified truth. Instead, it seems to be mainly the emergence of a certain type of behavior that can be seen as an interconnection between two different species – in a way, a symbiosis between reindeer and human, as Florian Stammler points out (Beach & Stammler 2006). Reindeer herders know these behavioral elements of reindeer with human beings, and in the wilderness they use this knowledge in their reindeer work. Secondly, I discuss the concepts of learning and knowledge. In the processes of learning practical tasks we can talk about different ways of knowing, but once someone masters certain practical tasks it is far more than just ways of knowing. In the end of the paper I return to the concept of knowledge, knowing and mastering.

THEORETICAL AND METHODOLOGICAL DISCUSSION

A master, a skilful reindeer herder, teaching a novice to do different tasks with reindeer gives only a short comment: "You see how this is done!" Sounds simple, and there are no more explanations. There is a word in Saami that means learning, *calbme* (calbmeeadni), where a novice learns by seeing instead of having a large variety of verbal instruction (Fors 2004: 87, Somby 2006, Kalstad 1996, Borgos 1993). This type of learning is commonly known in practical societies. In talking about applied practice, theory and methodology, this paper follows the ideas of the anthropological theory of practice, which emphasizes the embodiment of praxis. It is based on individual learning, which is mostly training and managing to do practical tasks. In this type of learning process the individual gains personal experience and uses her or his senses in relation to the environment. In this context the cumulative body of this type of knowledge, either collective or individual, is based on each ones' special

skills and praxis; shortly, it is a construction of enskilment. Only through enskilment can knowledge of a certain topic be produced to use, as in this article, the knowing of reindeer behavior (Ingold 2000, 2001, Ingold & Kurttila 2000, Pálsson 1991). In reality, seeing together with learning means that already within one's own environment the novice has gained basic skills, such as the use of a knife, rope or axe just to mention a few (Vuojala-Magga 2009 in press).

A handy approach to draw on the concept of skill can be taken from Ingold's (2000) dwelling perspective. Ingold has shown that skills are not techniques of the body but "the capabilities of action and perception of the whole organic being situated in a richly structured environment." (Ingold 2000: 5). Individual skills are not transmitted from generation to generation but they are incorporated into the *modus operandi* of a developing human organism through training and experiencing the performance of particular tasks. Instead of studying skills by the contemporary tradition of teaching, the focus is on the novice and his or her learning processes. In this approach the subject of the study is the practitioner in the context of an active engagement with the constituents of his or her surroundings within the social world. It can be expressed as a guided rediscovery with feelings or education of attention, the latter used by James Gibson (Ingold a 2000: 5, Ingold b 2000: 288, Gibson, Lave & Wenger 2001).

This type of guided rediscovery or education of attention has a situational corpus – it is a part of everyone's life world of practical learning. In this respect learning can be seen as a core idea of methodological claims, too. In anthropology, doing research work by learning and training certain practical skills follows the idea of radical empiricism. This methodology emphasizes lived experiences shared through participation (Jackson 1989, Rosaldo 1984, Stroller 1989, James 1912). According to Jackson: "A radically empirical method *includes* the experience of the observer and defines the experimental field as one of the interactions and intersubjectivity" (Jackson 1989: 4). Thus, as Ingold notes, "because people already dwell therein they think their thoughts they do." (Ingold 2000: 186). By living and doing work and tasks one can begin to verbalize the non-verbal levels of knowing. In his book *Zen in the Art of Archery,* Herrigel has expressed this type of implicit knowledge. He writes: "An apprentice becomes all the more sensitive to his teacher; he may have heard about many things, but *it is only when he gains experiences of his own that reality starts to unravel.* There is no need to have meanings of words, or there is no need to talk at all. The apprentice understands even when the teacher remains quiet." Herrigel 1978: 44, own italics). The strength in this type of learning is based on individual discovery, nothing can be understood until a novice has her or his own experiences – only through personal experiences can the novice make sense of the master's – or the skilful reindeer herder's – short comments, special verbal instructions or stories by the fire; metaphorically, stories find their home (Vuojala-Magga 2010 forthcoming). This way of practicing tasks is also fairly important in becoming familiar with relationships between human beings and animals, those fine tunings of movements and cooperation.

Finally, what is knowledge of practice from this perspective? The emphasis on contemporary studies of traditional ecological knowledge is focused on personal

experience with stories, and thus handed down through generations by cultural transmission (Berkes 2000, Eira et al. electric report, Nadasdy 1999, Usher 2000), in its deepest meaning it is embodied in language and institutions (Nielsen 1962, Tyler et al. 2007). Instead of using the concept of knowledge, such as cultural transmission or embodiment in language, in this context traditional knowledge can be seen as "a process of learning to accommodate and adjust themselves to these realities in the ways that help indigenous systems not only to survive but to regenerate themselves" (Prakash 1999: 168). This process together with learning can also be expressed as "ways of knowing" (Huntington 2005, Forbes & Stammler 2009) and finally it is hidden within action itself (Ingold & Kurttila 2000)

KUTTURA VILLAGE AND THE CONCEPT OF SIIDA

The village where I live a part of a year and where I have learned to work with reindeer is called Kuttura (in Finnish) or Kuhtur (in Saami). It is a village on the upper stream of Ivalo River in Finnish Lapland of the Saami area, Sápmi. During 1852 the border between Norway and Russia was closed[2], and the nomadic people of the area had to decide where to live. After 1852, three members of the Magga kin of Norwegian Saami, Guhtur Magga with his brothers, were the first ones to come from Finnmark in Norway and Karesuando in Sweden to settle in their winter pasture areas. This is how the villages, Purnumukka and Kuttura were established. Nowadays in Kuttura there are seven smokes (permanent households); each family gets its income from reindeer herding.

The seasonal life and reindeer herding systems in this village are based on Saami customs and practices. Most of the people speak or understand Saami language, but in the 1950s children were not aloud to speak Saami in the boarding schools they went to. In reindeer herding work, people use mixed Saami and Finnish. One of the Saami customs of herding practices is the siida system, which traditionally is defined as: "Beside the land siida consists of its members (*siidda olobmot*), individuals grouped in economically independent households (*báiki*)." (Eira 2008: 8). The members of a siida are connected to each other with a kinship system. "The herding success depends on siida consensus and the members' capability of acting and exchanging information in accordance with knowledge and insight gained by regular participation in the daily life of siida." (Eira 2008: 8, see also Paine 1994, Oskal 1995, Joks 2000, Sara 2001). In addition to previous elements, a siida can be defined through the approach of praxis, from this perspective it can be seen as a system getting transformed by time and socioeconomic situation. At the moment, Kuttura siidas are functioning either by a single family, if there is a good number of members in one family, or a siida can be a certain amount of households joined within a kinship system. The saying "No one survives alone" indicates the nature of the siida system; this means that each member of the family and kin has his or her own tasks for producing the success for the siida's herd and its members. In this respect the amount of members in each siida unit can vary depending on the type of year; in the good years siidas might be small and in turn, during the bad years siidas can be large – it is a flexible system. However, decision-making processes normally are reg-

[2] Until 1918 Finland was a part of Russia.

ulated by two principles, in the case of non-consensus "the last word" is given by the eldest member or by the person with the largest number of reindeer. Often these two factors occur in the same person (Vuojala-Magga et al. 2010). Learning in a siida is also diverse, each member in it gains special skills; in my case learning how to train a reindeer was introduced to me by two persons.

REINDEER HERDING AS A LIVELIHOOD OF INARI SAAMI AND THE KUTTURA SIIDA

In English literature reindeer herding is often seen as a very homogenous system in the Scandinavian North. However, in the Inari region of Lapland before WWII there were two different herding systems – Fell Saami and Inari Saami systems (Helle & Jaakkola 2007). Fell Saami were nomads moving with their herds from Norway southwards to forest areas of Russian Finland, as the Magga kin did. There are two characteristic differences between Fell and Inari Saami systems. Firstly, the former had big herds and they moved around in large areas, whereas the latter had less reindeer and the animals were herded or they lived close to the siidas' hunting and fishing area. Secondly, the Fell Saami marked their calves on the mountains in mid-summer with the attractive help of mosquito smokes, thus Inari Saami calves got their earmarks already in May in calving areas in "Vennikko" [3](Helle, Jaakkola 2007, Hannula 2000, Kortesalmi 2007, Huru 2008). In this way Inari Saami were able to keep their earlier marked calves from mixing with the big Fell Saami herds (Kitti 2005, Huru 2008). Beside these two systems, after World War II parts of the Skolt Saami tribes settled down with their system of reindeer herding, thus it was closer to the Inari system than to the Fell system (Vuojala-Magga et al. 2010).

Contemporary discussion about behavioral and genetic differences between semi domesticated, tame and wild or feral reindeer is taking place in anthropology (Beach & Stammler 2006). In this article I am not focusing on that discussion, instead, I am referring to the concepts of reindeer and reindeer behavior that are used in the herding practice around the Inari region. There are four different stages associated with reindeer behavior. One is feral or wild – this type of reindeer is called forest reindeer (*metsäporo*)[4], it avoids human being. The second type of reindeer is quiet and not that afraid of human beings (*hiljainen*) but does not let anyone touch it. The third type is tamed reindeer (*laitis*) for a certain period (the one who goes behind the man) but is not fully trained. The fourth type is a sledge reindeer (ajokas) – a fully trained reindeer.

It is commonly described that in the old days reindeer were semi-tame or in the Saami term "*quiet*"[5], only a few men with the help of a fairly tame lead bull (*laitis härkä*) and dogs were able to move by skiing with the herds from one grazing area to another (Paulaharju 1962, Itkonen 1948). For keeping the reindeer semi tamed, these

[3] *Venikko* originates from the word *ventää*, to keep a reindeer tied to a tree for the sake of learing to be quiet and to get trained as a draft animal.

[4] *Metsä*läinen means a person who lives in isolated areas in a small village – Kuttura is a *mets*äkylä, a forest village. *Metsä*pöllö – forest owl – is a person who is *metsi*ttynyt, i.e., the person sees the world through "trees" and feels uncomfortable in main villages. This indicates that *metsä*poro (forest reindeer) has changed its behaviour in a line of generations.

[5] The term quiet just means a reindeer that is not afraid people.

animals had to learn to get used to herding techniques of the men and the dogs. A single individual animal learns by imitating and copying the behavior of their mothers and leading bulls. However, the frightened ones, which did not learn, were normally killed for the sake of the herd (Kaisa Kitti 2005). Inari Saami described their reindeer to be so tame/quiet, that there were some which lived throughout the year near the household (*asujaporo*); the reindeer came to the house once it heard the reindeer herder's call (special shouting) (Kaisa Kitti 2005). On the one hand, people were able to regulate the dynamics of a herd by giving a chance for a single reindeer to learn the desirable behavior; on the other hand, this can be seen as practicing genetic selection, too. As described in the EÁLAT project, the main idea was to have a herd with large phenotypic diversity. Thus bulls made up 40% of the herd because their function was so essential; they dug the hard snow for the sake of the females and calves, and they protected against predators (Tyler et al. 2007, Eira et al. 2008).

In spite of the different operation models the coexistence between these two Saami groups was relatively peaceful. In the case of hard winters of thick snow cover, there were times when the Fell Saami had to let the reindeer move freely all the way to the southern forests, to the Inari Saami pasture areas. According to interviews, during those winters the losses in the big herds were more extensive compared to the small herds. Inari Saami were able to keep most of their reindeer with the help of dropping boreal lichen from the trees and digging through the hard cover of the snow (Kitti 2005). The functions of reindeer herding shortly before the 1950s can be characterized by three different factors. Firstly, there were two different herding systems in the Inari Region – Fell Saami and Inari Saami. Secondly, both systems were based on "quiet" reindeer behavior and active human work, which is called an intensive herding technique. Thirdly, there were various ways of resonating to weather extremes: Fell Saami had a smoke in the mountains in rutting time, and Inari Saami had shelters. People helped the reindeer manually like breaking the hard snow cover (on the fells) or dropping lichen from the trees (forests). In serious situations the reindeer herds were let to move freely around in the areas of other siidas. (Vuojala-Magga et al. 2010)

THE TRAINING OF A REINDEER

I want to talk about a single reindeer as an individual with his own personality, in particular a home reindeer[6] or a trained reindeer. These animals are known well; their owners hardly ever slaughter them; likewise someone besides its owner kills a good dog. In this respect, a single animal living with a human being exhibits a lot of personal characteristics. I remember my first reindeer so clearly, as if it happened yesterday. One day in January my husband Mauno brought me a little white reindeer (*valkkoporo)* – a calf less than one year old. He was so weak – these feeble reindeer are known as *vaipukka*. Mauno told me that while I take care of the reindeer I could also start training the animal, too. The little white reindeer was given the name Viljami, after my elder daughter's husband. Viljami was so starved that it took two weeks for him to recover to such a condition that he could start walking. I learned to

[6] That is, a reindeer that has learned to live nearby the house due to being fed since it was a calf, a so-called *kotiporo*.

feed the weak animal in a proper way, i.e. how much food and what kind of food should be given to a weak reindeer for recovering instead of overfeeding him to death.

In these two weeks I learned to harness the reindeer and take him outside the fenced area and tie him to a tree for the daytime (*ventää*). For a wild animal it is important to learn slowly to get used to being harnessed, that is why it is important to keep the reindeer tied up to a tree with the right length of rope – if the rope is too long a reindeer can break its neck while jumping and struggling to free itself. During this process of being harnessed at a tree, an animal learns to trust the sounds and movements around the house yard. The trainer goes to the reindeer, feeds it by hand and touches its neck and sides slowly. An important step in gaining trust is when it lies down after eating and even sleeps when people move around. After a while, once the animal is calm and used to being tied, the animal is ready for the next step. It was a good start for me; Viljami was like a sheep due to his weakness. After two weeks I started walking with Viljami, first short distances and then bit-by-bit they became longer. There were three things that Viljami had to learn: Firstly, he had to learn to rely on me – he had to walk beside me with his left side to my right side. All new attractions and fears had to become familiar – barking dogs, sounds of cars and snowmobiles. Secondly, Viljami had to learn to be relaxed, even if people walked behind him he should not get worried or panic. During this time he had to get used to being touched and rubbed on his stomach, too. In the third step, he had to learn to walk behind me free willingly, (*juovua*), with a loose rope (*hihna*), just in the same way as a reindeer calf follows his mother. I had to learn too: I had to get used to holding the rope tight in my left hand and my right hand holding the rope loosely while keeping it straight, and I had to learn to keep my position all the time with the same side of the reindeer while training him to walk. *I had to learn to respond to the movements of the reindeer in the right way by relying on my calmness.* This is called *laitistaa*. Together we learned to trust one another. The main idea is that a trainer's hold and movements should be firm, which gives the idea that panicking is worthless.

Fig. 1. Ari Huovinen is making a reindeer knot.

Once we learned this, we had a wonderful time; the reindeer became more than a so-called quiet, half-trained (*laitis*) animal. I gave Viljami the chance to relax when he

wanted to and we would stand together in the forest while Viljami observed his forest world and I observed Viljami's observations. So, our walks were slow, one could say we were lazy. It is said that white reindeer are sleepy and they are good pray for predators and this was very obvious with Viljami, too. He was sleepy even though he was already fit; sometimes he closed his eyes while walking. If he wanted to play around, to jump (*kilostella*), I let him do it – meanwhile I learned how to handle different movements of a reindeer. The next year Viljami was *urakka*, a two-year-old uncastrated reindeer. Our life started in the same way. I got him home from the reindeer round-up[7] and we walked for five kilometers back home through the forest. Viljami was comfortable with me. In two years' time, Viljami had grown up, though still he was smaller than a normal two-year-old male and still he was slow, sleepy and a bit sheep-like.

Fig. 2. A reindeer is laitis, it freely follows Ari Huovinen.

A reindeer gets castrated at the earliest during his third year, once he becomes a full-sized male. Castrated males hardly grow anymore; they just become fatter (*Pintava*) because they have no rutting season (rykimä). However, in those two years, Viljami had already become a good *takkaporo*, one who could carry packs on his back. During the third year Viljami did not show up in the early winter round up – my white uncastrated male was having a wild time somewhere in the forest. It is often said that the trained quiet reindeer (*hiljainen)* can hide. Normally, once snowmobiles enter the area – reindeer get wild and run in front of the machines, but a trained reindeer can hide, they do not need to run together with the rest of the herd. Their behavior is different due to training.

Nevertheless, once again we had calves in our yard for home slaughtery[8], and as usual I was taking care of them. By this time there was a normal geryish (suivakko) calf, every time I was outside in the yard this calf called to me *(roukua*) in the same way as he would call his mother.[9] I told my husband that we cannot kill him. So,

[7] Reindeer round ups take place from autumn to winter. In round ups reindeer are separated, some are slaughtered and sold while the others are kept alive.

[8] In our region we slaughter some reindeer at home for our own food or to sell the meat to locals. After separation round ups, reindeer are kept in the home yard for a few days, this makes reindeer relax and thus the meat is better.

[9] We have thought that when a calf is in a fenced-in area for the first time and it is not afraid of

while Viljami was having his adventures in the woods, I took another reindeer for training. He came to be Ukko-Poika (Our grandfather is called *Ukko* and *poika* is a boy). He was a normal calf, not weak. I started the same procedure; I harnessed him, tied him to a tree and after a while the walks started. Straight away I realized that Ukko-Poika was different; he was not a weak calf as Viljami had been. He had his will and moods in a stronger way. I was lucky enough that I had had an introduction with sleepy Viljami, because I had automatic bodily skills with Ukko-Poika and his movements. I guess that otherwise Ukko would have trained me to become *paltto – the one without cooperation.* Emotionally I was secure and firm in my training; eventually he learned to follow me with a loose rope, too.

One day we were coming from the woods, and most probably he was annoyed, because suddenly I felt his front legs on my shoulders. He practically jumped on my neck. I had already learned my bodily movements and how to keep hold. Most probably I turned around and held the rope firmly downwards so that he could not jump around anymore, but walk nicely; his head had to be held down firmly, too. So, I reacted automatically without thinking; I had the bodily skills and movements, and relied on them. It was a crucial moment, with his power of bodyweight and height on two legs he tested to see whether he was stronger than me and if I would back off or not. There was another time, too, when he jumped on my back. I had been leaning down to undo the rope from the tree. He was not aggressive – in a way I felt that he was happy to get to go for a walk. Once again, I had to hold him tight and it was me who gave him the orders; he was an uncastrated growing male reindeer. During this second time of training I had learned that walking rhythm came from me, not from him, so Ukko had to walk a bit faster than sleepy Viljami.

When spring came, and the first open patches of green were seen in the middle of the snow cover, I took Ukko to the depths of the woods to free him for the coming summer. During those years we had female reindeer in a large fenced-in calving area in the forest[10], for me, walking on those snowmobile tracks nearby the fence region was the most natural path to get to the woods by. Once I had taken him to the depths of the woods – I took the rope and harness away from him and I carried on walking. He knew that he was free, and still he just followed me. Eventually far away from the calving area, I found a tree full of arctic moss; by dropping them on the snow I made him a nice meal. I left and he stayed under the tree eating this delicious food. Two days after releasing Ukko, I was inside our calving fence with pregnant females. There was something I wanted to say to my husband, so I was loudly calling Mauno, because he was far away from me. When I got to the entrance of the fenced area, Ukko-Poika was running from the forested hillside towards to me. He had heard me and came to eat pellets. Every day during those weeks in the calving area, Ukko was

people or does not panic by being fenced in, this calf must have been born in a fenced calving area the previous spring. Although they spent only a few days in a fenced area, they do remeber those same people, their smell and voice.

[10] Instead of having calves earmarking round-ups in summer, our siida members used to have female reindeer in large fenced areas in the forest from March to the end of May. Female reindeer gave their birth to calves in the fenced area and calves got their earmark in their first 24 hours. Every second day those females and earmarked calves were let free. This practice finished in 2009, and now calves get their earmarks in the summertime.

Fig. 3. Ari Huovinen is having a full trained sledge reindeer.

waiting for me on the other side of the fence. During his second and third winter, I continued his training. Ukko was different in rutting season, he was sexually excited. During those two winters he had had a wild time, because in both Januaries when I got him home he was awfully weak, thus had had an active autumn time.

Eventually Viljami and Ukko-Poika were castrated in their fourth spring. After that they were harnessed in front of the sledge, which was done by my husband's brother. To get them harnessed was not that difficult because they allowed people to touch their sides and stomach, since I had been doing it straight from the beginning. They are both working as sledge reindeer during winter months for tourists in Saariselkä tourist center with my husband's brother, where Viljami is Father Christmas' white reindeer – or Rudolf for the foreign children.

LEARNING ABOUT REINDEER FROM OBSERVATION AND VERBAL KNOWLEDGE

We, human beings, have various academic and practical approaches to looking at reindeer and their behavior. Within our academic world we have two rather different approaches based on natural sciences or social sciences. According to the episteme of natural sciences a reindeer is viewed through its "natural behavior" in which a reindeer is a biological creature and thus its behavioral models follow the laws of sociobiology abided by evolution theory and genetic programming. In anthropology, in turn, the questions about reindeer are analyzed from a human perspective. Anthropological knowledge is conceptually based on the ethnography of human observation and explanations – either on information from reindeer herders or by researchers' own observations. By using our epistemological requirements our final theory guides us from the analyses of ethnographical data to the conceptual conclusions and theoretical discussions. Indeed, both disciplines do come to certain conclusions about knowledge of reindeer (See also Ingold 2000).

In the same respect, knowledge based on enskilment of reindeer herders can be

viewed from two dimensions, objective and subjective. Firstly, we take a reindeer as an object of reindeer herding – in the same way as we do in academics. From this perspective reindeer herders have merely objective verbal statements and mnemonics. I call this professional knowledge about reindeer. Herders gain a large variety of knowledge of the behavior of reindeer, which encompasses various aspects such as behavior models in different seasons, like rutting season is from the last week of September to the 10th of October or the highest peak of calving is around 18th–24th of May. This professional knowledge can be resolved to more detailed sectors: there is everyday knowledge of reindeer behavior in different weather patterns and its implications; specialized behavioral models based on age, sex; and finally, knowledge of an individual animal e.g. its character. Reindeer herders have deep historical knowledge, which in turn, tells about behavioral and herding models from past generations. All of these types of knowledge can be restored and regenerated in herding practices and it can be transferred to other contexts, hence it can be compared and exchanged between different professionals. We can collect this type of knowledge by participation, observation and interviewing – it can be told in words.

This type of objective knowledge of behavioral patterns of reindeer, herders and researchers can be written down as a continuous story. As discussed before, herding techniques have varied throughout the history of reindeer herding. Even now there is a transformation in herding techniques taking place in Finnish Lapland, and ultimately this has been affecting the behavior of reindeer, too. The former semi-domesticated or "quiet" Saami reindeer changed to feral reindeer within the changes from the intensive herding to extensive herding techniques. During those years of intensive herding the bulls and uncastrated males had an important role in the herd – they secured the herd from predators and helped to dig lichen out from underneath the hard snow cover – the herd was kept together with reindeer herders (Tyler et al. 2007). The bulls stayed together with the herd because of the human action of keeping the herd as a whole. Some changes in herd behavior and structure took place after the 1960s once snowmobiles were started to be used. The snowmobile enabled extensive herding techniques and reindeer were left by themselves to range freely (Beach 1981, Ingold 1980, Helle Jaakkola 2009). The role and amount of the bulls changed; there was no longer a need to have castrated males as sledge reindeer or to have their help in moving the herd to new pasture areas. The number of males in Scandinavia collapsed (See Tyler et al. 2007).

Reindeer were no longer semi-domesticated but, rather, became forested (feral or wild), because they had to protect themselves. This changed the structure of herds, too.[11] Females, which are strongest during the springtime, no longer accepted having male reindeer around. Females take care of those calves born in the previous spring, however, once the spring starts to turn to the end of April, old calves are kicked out before females give the birth to new calves. Those just born calves can be wounded by the calves (*kermikkä*) of the previous year. Calving takes place in a secured place away from the rest of the female herd and after a few days the female goes back to its herd. At present bulls tend to move around with females only dur-

[11] These changes cannot be generalised, because in Finland there are special co-operatives with fences around (see Nuccio Mazzullo's article in this book).

ing the rutting season, after that they go on their own and gather into small groups. Many males are so-called "place faithful reindeer" (*asujaporo)*, which in turn means they have certain areas for their pasture rotation and are easily found if needed.

Once again times are changing. Quiet reindeer just like Viljami and Ukko-Poika have returned – just like in the old days – because these reindeer are needed to work in tourist areas. In Kuttura, reindeer have learned to come to the yard of the house. They use the woods around the house as their home area, and during the time of freedom they still come to the house because of the good food during winter or to take shelter (in old cowsheds and barns) from the mosquitoes during summer. These reindeer are mostly the old castrated males and young uncastrated bulls. Within these male herds, there are also learning processes taking place; the young males, which move around with elder reindeer, learn to make their home in forests nearby houses. Some of these reindeer are known as *tuntoporo*, the known individual reindeer. Once the herds for autumn and winter round-ups are collected, herders know which reindeer are missing according to the known reindeer (*tuntoporo*) and their companions. (There are many female *tuntoporo*, too). A quiet reindeer can benefit the herders. For example, there have been situations where old males come on their own to round up places for food; males have no fear of loosing calves like old females do from their experiences in previous round ups. Herders can benefit from the behavior of a tamed reindeer because it can help in collecting and moving herds, but it can hide, too. However, a tamed castrated male is always fitter than a breeding bull, which drops his antlers before mid winter. Castrated males still have antlers in mid winter and they can demonstrate their power by trying to mount the neck of a human being or a dog.

A female reindeer in the wilderness shows her calf in one years' time all the skills needed for survival, places for forage and safe routes to get to different seasonal areas. Calves learn by following their mothers. If a calf less than a year old is taken away from its mother to a fenced in feeding area during January and February and after that is taken back to the forest, some reindeer herders call it a "homeless animal" *koditon poro*, simply because it did not have time to learn everything from its mother. So before letting a calf loose, people prefer to look for some other reindeer to join it.[12] Not only in the first year but also in the coming years the young reindeer learns more about her or his lifeworld. Semi-domesticated reindeer learn to take advantage of the affordances offered by human beings (See also Beach & Stammler 2006). In the feeding areas, the weakest reindeer show their free will; in a few days time they come to eat from the hand of the human being, in this way they avoid the competition for food. There are also frightened reindeer as before, even today a scared one is not good for the sake of the herd when collecting or herding the group of animals. A scared reindeer can break up the herd and make it feral. Each type of individual behavior, whether it is in a fenced in area or out in the wilderness, is reindeer behavior in which an animal uses its different capabilities according to its age,

[12] It is also said that once there is a medium-hard snow cover in springtime, lone calves can survive better without a herd. The snow cover is strong enough for their movements, and in this way they have access to arctic moss – whereas the adults being heavier have difficulties moving around because the snow cover breaks.

character, and situation of affordance. This type of animal behavior can be seen as "a resource for its own further development" (Oyama 2001: 4). Or as Lewontin (2001: 62) points out, an: "Organism is not simply the object of developmental forces, but is the subject of their force as well. Organisms as entities are one of the causes of their own development." Some behavior models show that a single reindeer can affect the system and behavior of the whole herd in the long run. Through the historical perspective the changes in the behavior of semi-domesticated reindeer has varied according to the closeness of herders and their herding techniques.

LEARNING ABOUT REINDEER FROM THE ART OF PRACTICE

As it is expressed in Zen, a certain reality starts opening up only once a novice gains his or her own experiences of practice. Furthermore, these experiences should be continuous and life long learning processes, only then could we call this person a novice. In this perspective a novice is not one who comes to work with reindeer for few years, but she or he has a life long engagement with this livelihood. This part of the discussion on knowledge of reindeer comes from the art of doing. In contemporary anthropology doing and practicing are understood as processes (Ingold 2000, Ingold Kurttila 2000, Forbes & Stammler 2009). This indicates that instead of using a concept of knowledge we should talk about a process of knowing. Knowledge as such, is something stable and transformable and it could be used in various contexts. Here I refer the definition of knowledge by Mark Polany where "Knowledge is an activity which would be better described as a process of knowing." According to his work, a theory of knowledge must be applicable to both kinds of knowing (Polanyi 1969: 132). He argues that knowing is rather an indwelling. When we learn to use something like a language or a tool, and thus make ourselves as aware of these things as we are of our body, we interiorize, for example, tools and we make ourselves dwell in them (Polanyi 1969: 134, 148). To understand this, one does not look at something as an observer, instead she or he is attending it from joint action – as a function of operation (see also Polanyi 1969: 153). From this perspective, we understand other people once we gain the knowledge of their doing. Polany says: "…we know other minds by indwelling in their acts." (Polanyi 1975: 48).

However, according to reindeer herders' comments, our academic studies on reindeer are about knowing but not knowledge.[13] In the reindeer herders' framework, our knowing is certainly not know-how nor does it fit into their definition of knowledge. Apparently, we only have some bits and pieces of the knowledge of reindeer, thus there must be something missing. I suppose, one part of this argument is based on our research period or fieldwork duration – as said before a novice does not learn enough in one or two years' time – so how does an anthropologist or a biologist gain knowledge about reindeer when it takes a lifetime for a professional (i.e. reindeer herder) to learn? The second part of the argument is based on the notion that we do not gain the skills to practice reindeer herding as a livelihood – so how do we get the basics of our knowledge? I guess this is a reason why we only just know, thus we are never professionals – in a way we produce forms without

[13] There is a professional reindeer herders' journal, *Poromies,* with articles by reindeer herders and academics.

substance or bones without flesh.

Let us examine two examples in this argument. For instance, take an explanation of genetic inheritance, and we start to get closer to reindeer herders' criticisms of scientific knowledge. We think about rutting bulls collecting their female herd. Just like in school textbooks, one knows that there is a rutting season and we have scientific knowledge about reindeer's sexual behavior. According to sociobiology there is a law of the fittest where the strongest bulls breed with females thus securing the best genes for future generations (Helle 1982: 39–49). In reality there is a word *puikkaroida* used among herders, which means that the young males breed with the females behind the backs of bulls, while bulls are fighting and jealously running around. An odd thing is that at this stage young males have not yet shown whether they will be the fittest bulls in their adulthood.

The reindeer herders' argument can be taken into anthropological discussion, too. In this second case we take a human perspective. Imagine yourself being alone in a forest picking berries and getting in the way of a herd of running females being chased by a rutting bull. This worn out jealous animal is ready to attack anyone in his way. In this case our knowledge from biology or ethnographical stories is not enough. In reality, we have to know more about reindeer, be aware of movements in its eyes, ears, head and neck as well as our own movements in order to know if a situation is likely to be harmless or if it can be dangerous. However, we have to be aware of theses things beforehand by reading the signals of the male reindeer. Within a few seconds, in the case of attack, we should already know what to do and how to do it. Are these examples of knowledge or knowing?

There might be two things that we are missing, namely closeness to an animal and those feelings that get born in closeness. I am talking about emotions derived from close contact. In tacit knowledge and tacit knowing Michael Polanyi talks about relying on one's own subsidiaries. For example, we rely on the feelings of our hand and fingers holding a knife within our movements of hand and thumb when we cut a delicate earmark on an ear of a just born calf. Our focus is on the ear and on the cut itself, but we do not think about the hand and the knife. This is enskilment –skills and feelings (See Polanyi 1969, Vuojala-Magga 2009). Knowing reindeer is based on herders' enskilment. From the point of view of training a reindeer one is in close contact with a single animal and at the same time gains understanding from enskilment. To learn about reindeer there are both practice and closeness as basic units for a wider understanding. When we train a reindeer we learn in practice about the appearance of a single individual animal and its character and temperament. From this personal experience one can recognize those yearly changes of reindeer in its fur, growth and changes of appearance of face and body, which all together offer an everyday recognition of variations and differences of reindeer in a herd. The similarity of close contact can be understood in reading the earmark of a reindeer. Once a herder learns to cut the ear mark, or as it said starts making her or his own handwriting (*käsiala*) on a calf's ear, only then is she or he ready to read or recognize different owners' earmarks from ears of reindeer in a herd (See also Paine 2009) In an inductive way, closeness is an important thing in learning and getting to know reindeer.

In each case of closeness there are feelings and emotions from both partners. At the same time a human being has to rely on ones' own feelings, and a reindeer has to learn new feelings, too. Co-operation between human and animal is a resonance of different feelings. A person has to resonate to the animal's fear or anger by being calm. In the case an angry reindeer, if a person shows fear and turns around fast, it is self-evident that the reindeer will attack. Training reindeer relies on firmness; only then will one achieve trust and reliance from the animal. In both cases calmness is the key emotion. A calm and steady trainer makes a reindeer rely on a human being and his or her way of resonating to the world where the animal is meant to work with those tasks designed by human beings. The idea of learning is hidden in these thoughts; one has to learn in such a way that there are no thoughts of personal movements yet still there are thoughts of movements as a whole – movements of a reindeer and a person within all the life around. Movements of reindeer have to be known, not only in the human – animal connection, but within the connections of all living that are there in that very moment. One cannot think just about movements, but she or he has to perceive them as the reindeer does, only then is she or he able to resonate. Resonating movement itself is emotion; it is either fear or calmness.

Again, letting the reindeer loose in the forest for summer, the animal changes its behavior to the forest life, thus it is wise, there is no hope of the help from its human friend at that time, nor is there a need for it. No trainer expects to get co-operative signs from a reindeer in the summer time. In the same way when a human being is at home in the wilderness, she or he indwells in that world of actions – there is freedom on both sides. I argue, that this is about the tacit knowledge that men and woman have – it is a process of knowledge that has life in it at the same time.

FINAL DISCUSSION

As a conclusion I have two questions to be answered. Firstly, what do we, as human beings, learn about reindeer? In other words, can any of this knowing be transferred to other contexts? As I said before, you cannot let a reindeer jump on your neck. This is the same with us human beings. In the north one cannot survive alone, help is always needed. Within one's life world each person is known as well as you know the tamed reindeer, both the good parts and the bad parts. There are always two ways of coping with fellow human beings, either you let someone jump on your neck or you build up a mutually trustful relationship. It can be said that people resonate to each other without words, as Polany pointed out, through actions (see Polanyi 1975). The one who keeps jumping on the neck of another person is eventually left alone – ultimate exploitation never functions among the reindeer herding societies. At the same time individual freedom and own space with some kind of wildness is accepted just like the wild reindeer have in wilderness. I argue that this is a part of knowledge of reindeer behavior and this similar knowledge can be verbalized as a kind of wisdom of social behavior among reindeer herding societies.

Secondly, what do we learn as academics from training a reindeer? The learning process of training a reindeer goes step by step – once a person thinks that she or he knows what to do, the next training session turns out to be very different. Eventually, it is an open-ended process of getting deeper and deeper into the world of rein-

deer. If I compare this idea to our academic working processes, it is apparent that there is not so much difference. Our work is everyday practice of gaining new skills in writing, reading and thinking with emotions. Once we think that we know something, the next task seems to be very different. I suppose that if reindeer herders knew of our practice and love of writing in real life, there could be more understanding in our work and final statements, too.

However, finally there is no definite knowledge about reindeer. There is never a stable closed system in the behavior of animal and human life, but active systems that play an active role in their own development; this is the same in academic work, too (see also Bateson 2001: 156). A master, whether an academic or reindeer herder, has good skills in proceeding in her or his work and thus uses the most convenient ways of doing her or his work. Experience gives more power to make knowing become knowledge and the other way, too. Whether in reindeer herding practices or in academic writing, knowledge is useless until one has the skills to apply it.

In a few parts of this article I have referred to texts of Zen. It was in 2005 when my supervisor, Prof. Timo Järvilehto, advised me to get to know Zen to better understand nonverbal communication and practical skills. Zen reveals tacit knowing (Vuojala-Magga 2009). In Zen knowing means not knowing. As a conclusion about human-animal relationships I finish this article by quoting Suzuki Daisetz:

> A human being is a thinking creature, and thus, he makes his great things once he does not think or count. To become to be a child again is only acquired, once he has practiced the skill of forgetting himself during those many long lasting years. Once a human being gains this skill again, he does think and thus he does not think. He thinks like the falling rain from the skies thinks, he thinks like the wave on the ocean thinks, he thinks like a twinkling star in the night sky thinks, and like the green leaves in the spring wind think. Then he, himself is that rain, ocean, star and the green color of the leave (Suzuki 1978: 6).

ACKNOWLEDGEMENTS

This article is a part of the Fin-Caviar (Community adaptation and vulnerability in the arctic) project of the Arctic Centre. I would like to thank Florian Stammler and Hiroki Takakura for accepting my paper for the conference, "Social significance of animals in nomadic pastoral societies of the Arctic, Africa & Central Asia", although I could not personally be there. For my discussions about implicit knowledge I appreciate Professor Timo Järvilehto in Kajaani Psykologian Laboratorio, and about special topics on reindeer herding my friends of reindeer herders, Viljo Huru and Kaisa Kitti senior.

BIBLIOGRAPHY

Bateson, P.

2001 Behavioral Development and Darwinian Development. In *Cycles of contingency: Developmental systems and evolution*, ed. S. Oyama, P. Griffiths and R. Gray, 149–166. Cambridge, MA:

MIT Press.

Beach, H.

1981 *Reindeer-herd management in transition. The case of Tuorpon saameby in northern Sweden.* Acta Universitatis Uppsaliensis 3. Uppsala: Almqvist and Wiksell International.

Beach, H. and Florian, S.

2006 Human Animal Relations in Pastoralism. In *Humans and Reindeer on the Move*, special volume of *Nomadic Peoples.* 10 (2), 6–30.

Berkes, F., Colding, J. and Folke, C.

2000 Rediscovery of Traditional Ecological Knowledge as Adaptive Management. In *Ecological Applications* 10(5), 1251–1262.

Borgos, J.I.

1993 Tradisjonell Samisk Kunnskap og Forskning in Traditionel samisk kunskap och forskning [Traditional Sami knowledge and research]. In *Diedut* No.5, ed. Lasko, Lars-Nila, 7–21. Nordisk Sami Institutt: Guovdageaidnu.

Bull, K. S., Oskal, N. and Sara, M. N.

2000 *Reindriften I Finnmark: Rettshistorie 1852–1960* [Reindeer herding in Finnmark: the history of rights 1852–1960]. Oslo: Cappelen.

Eira, I., Marie, G., Magga, O. H., Bongo, M. P., Sara, M-N., Mathiesen, S. D. and Oskal, A.

2008 *The challenges of Arctic reindeer herding: The Interface between reindeer herders' traditional knowledge and modern understanding of the ecology, economy, sociology and management of Sámi reindeer herding*. Sámi University Collage. EÁLAT project. http://archive.arcticportal.org/550/01/eira_127801.pdf (accessed 20 September 2009).

Forbes, B. and Stammler, F.

2009 Arctic climate change discourse: the contrasting politics of research agendas in the West and Russia. In *Polar Research* vol. 28, 28–42.

Fors, G.

2004 *Selskinn som en mulig ressurs. Bruk av sel i Finnmark, Grönland og Island* [Seal skin as a possible resource: The use of Seal in Finnmark]. Hovedfagsoppgave i duodji: Sámi Allaskuvla Guovdageainnus.

Gibson, J. J.

1979 *The Ecological Approach to Perception*. Boston: Houghton Mifflin.

Hannula, M.

2000 *Porojen hihnavasotusperinne. Maa-ja metsätalousministeriö* [Tradition in leach-calvin]. Kemijärvi: Lapin Painotuote.

Helle, T.

1982 *Peuran ja poron jäljillä* [On the track of wild-reindeer and reindeer]. Vaasa: Kirjayhtymä Oy.

Helle, T. and Jaakkola, L. M.

2008 Transitions in herd management of semi-domesticated reindeer in northern Finland. In *Annales Zool. Fennici* 45, 81–101.

Herrigel, E.

1978 *Zen ja jousella ampumisen taito* [Zen in the Art of Archery]. Helsinki: Otava.

Huntington, H. P.

2000 Using traditional ecological knowledge in science: methods and applications. In *Ecological Applications* 10, 1270–1274.

Ingold, T.

1980 *Hunters, pastoralists and ranchers: reindeer economies and their transformations*. Cambridge: Cambridge University Press.

2000 *The perception of the Environment Essays in livelihood, dwelling and skill*. London and New York: Routledge.

2001 From Complementary to Obviation: On Dissolving the Boundaries between Social and Bio-

logical Anthropology, Archaeology and Psychology. In *Cycles of contingency: Developmental systems and evolution,* ed. S. Oyama, P. Griffiths and R. Gray, 255–280. Cambridge, MA: MIT Press.

Ingold, T. and Kurttila, T.
2000 Perceiving the Environment in Finnish Lapland. In *Body & Society* Vol.6(3–4), 183–196.

Itkonen, T. I.
1948 *Suomen Lappalaiset, I, II*. [The Lapps in Finland]. Porvoo Helsinki: WSOY.

Jackson, M.
1989 *Paths Towards Clearing. Radical Empiricism and Ethnographic Inquiry.* Bloomington, Indianapolis: Indiana University Press.

James, W.
1912 *Essays in Radical Empiricism*. New York: Longman Green and Co. http://www.brocku.ca/MeadProject/James/James_1912/James_1912_02.html (accessed 22 March 2008).

Jernsletten, J-L. L. and Klokov, K.
2002 *Sustainable Reindeer Husbandry*. Arctic Council 2002. Tromsø: Centre for Saami Studies, University of Tromsø.

Joks, S.
2000 *Tradisjonelle kunskaper i bevegelse: om konsisteten, reindriftsas praksiser* [Traditional knowledge in movement]. Hovedfagsoppgave i sosialantropologi: Univesitetet i Tromsö.

Kalstad, J. and Klemet, H.
1996 The Modern Challenge Facing Knowledge in Sami Subsistence. In *Awakened Voice, The Return of Sami Knowledge,* Diedut Vol 4, ed. E. Helander, 21–30. Kautokeino: Nordic Sami Institute.

Kortesalmi, J.
1996 *Pohjois-Vienan poronhoito Talonpoikien poronhoidon alue, ominaislaatu, ikä, alkuperä ja kehityslinjat vuoteen 1922* [The North-Viena Karelians´ reindeer herding practices. Agricultural region of reindeer herding, its specialities, age, origin, and lines of development to the year 1922], Kansatieteellinen arkisto 41. Suomen muinaismuistoyhdistys: Helsinki-Vammala.
2007 *Poronhoidon synty ja kehitys Suomessa* [The birth and development of reindeer herding in Finland]. Tammer-Paino Oy: Tampere.

Lave, J. and Wenger, E.
2001 Legitimate peripheral participation in communities of practice. In *Supporting Lifelong Learning: Perspective on Learning*, Volume 1, ed. R. Harrison, 111–126. Florence, KY: Routledge.

Lewontin, R. L.
2001 Gene, Organism and Environment. In, *Cycles of contingency: Developmental systems and evolution,* ed. S. Oyama, P. Griffiths and R. Gray, 59–66. Cambridge, MA: MIT Press.

Nasasdy, P.
1999 The Politics of TEK: Power and the "Integration" of Knowledge. In *Arctic Anthropology* Vol 36–(1/2), 1–18.

Nielsen, K.
1962 *Lappisk Ordbok.* vols. I-IV [Lappish terminology]. Oslo: Universitetsforlaget.

Oskal, N. A.
1995 *Det rette, det gode og renlykken* [Rights, its´ product and reindeer luck]. Doktoravhandling i filosofi: Universitetet i Tromsö.

Oyama, S., Griffiths, P. E. and Gray, R.D.
2001 Introduction: What is Developmental Systems Theory? In. *Cycles of contingency: Developmental systems and evolution,* ed. S. Oyama, P. Griffiths and R Gray, 1–12. Cambridge, MA: MIT Press.

Palsson, G.
1991 Enskilment at the sea. In *Man* 29(4), 901–27.

Prakash, M. S.
1999 Indigenous Knowledge Systems – Ecological Literacy Through Initation into People's

Science. In *What is Indigenous Knowledge. Voices from the Academy*, ed. L. Semali. New York: Falmer Press.

Paulaharju, S.

1962 *Lapin muisteluksia* [Memories of Lapland]. Porvoo: WSOY.

Polanyi, M.

1969 *Knowing and Being. Essays by Michael Polanyi*. ed. M. Grene. Chicago: University of Chicago Press.

Polanyi, M. and Prosch, H.

1975 *Meaning*. Chicago and London: The University of Chicago Press.

Reinert, E.S., Aslaksen I., Eira, I. M., Mathiesen, S., Reinert H. and Turi, E. I.

2008 *Adapting to Climate Change in Reindeer Herding: The Nation-State as Problem and Solution*. EÁLAT. http://archive.arcticportal.org/550/01/eira_127801.pdf (accessed 20 September 2009).

Somby, S. R.

2006 *Saamenkäsityön eli duodjin kuvaus. Näyttötutkintoperusteet. Saamenkäsityönkisälli ammattitutkinto* [A description of Sámi handicrafts and the basics of its examination practices]. Helsinki: Opetusministeriö.

Suzuki, D. T.

1978 Johdanto. In *Zen ja jousella ampumisen taito,* trans. E. Herrigel, 4–6. Helsinki: Otava.

Stoller, P.

1989 *The taste of ethnographic things: the senses in anthropology*. Philadelphia: University of Pennsylvania Press.

Tyler , N. J.C., Turi, J. M., Sundset, M.A., Bull, K. S., Sara, M-N., Reinert, E., Oskal, N., Nellemann, C., McCarthy, J. J., Mathiesen, S. D., Martello, M.L., Magga, O. H. , Hovelsrud, G. K., Hanssen-Bauer, I., Eira, N.I., Eira, I. M. G. and Corell, R. W.

2007 Saami reindeer pastoralism under climate change: Applying a generalized framework for vulnerability studies to a sub-arctic social-ecological system. In *Global Environmental Change* 17, 91–206.

Usher, P.

2000 Traditional Ecological Knowledge In Environment Assessment and Management. In *Arctic* 53(2), 183–193.

Vuojala-Magga, T.

2009 Just simple things but complicated skills: archaeology, practical skills and climatic change from the perspective of anthropology. In *Máttut – máddagat. The Roots of Saami Ethnicities, Societes and Spaces/Places,* ed. Äikäs Tiina, 164–173. Vammalan Kirjapaino : Sastamala.

forthcoming 2010 From information to knowledge: Learning and gaining skills among Sami reindeer herding societies in the context of climate change. University of Oulu, Ph.D. thesis.

Vuojala-Magga, T., Tennberg, M., Turunen, M. and Ryyppö, T.

forthcoming 2010 Resonance Strategies of Sami Reindeer herding during Climatically Exceptional years in 1960–2008.

Metaphorical projection and integrated cognitive systems: The Samburu in North Central Kenya

Shinya Konaka

Graduate School of International Relations, University of Shizuoka, Japan

ABSTRACT

Characteristics of the cognitive systems in the Samburu pastoral people in North Central Kenya, in East Africa were investigated with special attention to their metaphorical way of thinking. This revealed that their perceptions of livestock, humans, and wild animals are an integrated system, reinforcing the social significance of animals. The cognitive system of the Samburu does not separate these categories, but instead perceives them as parts of an integrated system that is loosely and flexibly connected by the logic of metaphor. Moreover, myths and customs of the Samburu indicate that even the shift from livestock to wild animals and from human beings to wild animals can happen in the imagined world of the Samburu. The distinctions between the three categories are vague, permeable, and even convertible. Therefore, the dichotomy of "wild animal versus livestock" or even "humans versus animals" needs reevaluation; instead, the cognitive system should be analyzed as an integrated system in which objects are metaphorically interrelated. Investigations also suggested that the dichotomy between small versus large stock should be viewed with fresh eyes. The idea of a transition between hunting and herding was also supported, because wild animals and livestock are metaphorically connected even in totally pastoral African societies.

Keywords: Samburu, pastoralism, metaphor, anthropomorphism, integrated cognitive system

INTRODUCTION

Close examination of several characteristics of the cognitive systems of the Samburu pastoral people in North Central Kenya in East Africa, with special reference to the metaphorical way of thinking, reveals perceptions of livestock, human, and wild animals as an integrated system, reinforcing the social significance of animals.

There is a long and rich anthropological tradition of examining the cognition of people in various cultures. As Ohnuki-Tierney (1981) summarized, the tradition of these studies until early 1980s can be classified as either European "symbolic classification" (Durkheim & Mauss 1963; Lévi-Strauss 1966; Needham 1979) or American "cognitive anthropology" (Conklin 1955; Goodenough 1956; Tylor 1969). Although both traditions undoubtedly helped to relativize the Western notion of cognition to great extent, they omitted examination of the dualistic character of nature and cul-

ture, human being and animal.

Anthropological studies after the 1990s, which tended to regard the dichotomy as more debatable, questioned whether the Western notion of cognition was adequate. For example, Bird-David (1999) criticizes Lévi-Strauss' analysis of totemism, reviewing the history of animism theory. She points out that "Lévi-Strauss did not question the authority of the Western objectivist view of reality, which accepted a priori the nature/society dualism" (1999: 70). Descola (1996: 98) also criticizes the dichotomies: nature-culture, nature-supernature, nature-art, nature-history, nature-mind, etc. He suggests, "Once the ancient nature-culture orthogonal grid has been disposed of, a new multi-dimensional anthropological landscape may emerge" (1996: 99).

Thus, if such dichotomies are discarded, what are the characteristics of a non-dualistic relationship between nature and culture, humans and non-humans? Since the 1980s, cognitive scientists have helped to answer this question through the study of metaphor. For example, Lakoff and Johnson (1980: 3) suggest that "the way we think, what we experience, and what we do every day is very much a matter of metaphor." Guthrie (1993) gave us another clue. He focuses on "anthropomorphism" in human cognition. He explains that "scanning the world for what most concerns us--living things are especially humans—we find many apparent cases. Some of these prove illusory. When they do, we are animating (attributing life to the nonliving) or anthropomorphizing (attributing human characteristics to the nonhuman)" (1993: 62). The examination of metaphor and anthropomorphism allows more flexibility than rigid dualism. Thus, the ethnography of non-dualistic perception may be described in terms of metaphor and anthropomorphism.

Certainly, since the classic ethnography of Evans-Pritchard (1940), anthropologists have been focusing on the cognitive system of pastoral people. However, most of the research has limited attention to the pastoralist's cognitive system for livestock, typically shown by the classification of livestock based on the color and pattern of an animal's body (e.g., Fukui 1979).

Despite the great contribution of this research to the study of the cognitive system of pastoralists, such research presupposes that cognition of livestock is separate from the cognition of humans and of wild animals. In addition, a prerequisite to this supposition is that a dichotomy distinguishes the human world from the natural world, an idea which is deeply rooted in the thinking of the non-pastoral modern world. Therefore, a reexamination is warranted of the cognition of pastoralists from the viewpoint of a non-dualistic perception of livestock, humans, and wild animals.

Certainly, pastoralists do not confuse livestock with humans or livestock with wild animals. They clearly recognize each category independently. However, the metaphorical connection of these categories in the imagined world view may offer an important clue to understanding pastoral culture.

Distinguishing the indigenous point of view from an analytical point of view is one of the difficulties in the study of metaphor. Ethnographic data may not reflect the indigenous point of view that is completely free of bias. Furthermore, the analytical point of view may be useful to clarify the cognitive system of a people.

Therefore, a sort of analytical model of the characteristics of the cognition of pastoral people may be developed that incorporates the non-dualistic paradigm, which is extracted and abstracted from the daily lives of the pastoralists, and ethnographic cases to a certain extent.

THE SAMBURU AND METAPHOR

The Samburu (self-professed *Iloikop*) are semi-nomadic pastoralists who occupy the Samburu District in a region of semi-desert in the north central area of the Republic of Kenya. They speak the north Maa dialect of the Maa language and belong to the greater family of Eastern Nilotic peoples (Sommer & Vossen 1993). The total population of the Samburu was 143,547 in 1999 (Republic of Kenya 2001). Samburu society may be characterized as a gerontocracy with complicated age systems (Spencer 1965).

Most of the Samburu raise cattle, sheep, and goats. Although some of the population practice agriculture and labor for wages, pastoralism is still the major source of subsistence for the Samburu. Hunter-gatherers and blacksmiths are despised. Food staples include mainly milk and milk products, such as yogurt and butter, which the Samburu augment with boiled and roasted meat.

Metaphor is the keynote of the daily life of the Samburu. Metaphorical expressions and similes are commonly used in daily conversation: for example, "X is like Y" (X *kotwana* Y) and "X, like Y" (X *atwana* Y.) Metaphor also is reflected in the Samburu culture; it is used in the naming system (Konaka 2000), material culture (Konaka 2006a), myth, legend, rumor, and ritual.

THE INTEGRATED COGNITIVE SYSTEM OF THE SAMBURU: COMMON EXPRESSIONS AND SIMILES

The Samburu clearly distinguish the categories of livestock, humans, and wild animals as each category is identified with a different folk term: *swom* for livestock, *oltungana* for human, and *ngweshi* for wild animals. The general folk term *nkweni* means bird. To refer to animals that are unfamiliar, the Samburu borrow Swahili language, which is the *lingua franca* of East Africa. For example, fishes are called *samaki*, from the Swahili.

From 1992 to 2002, I collected ethnographic data at Lorroki Division, the Samburu District, in north central Kenya. Additional supplementary research was carried out afterwards. Each ethnographic case represents the collection and extraction of language from each moment of daily life and daily conversations of the Samburu. The data is also supplemented by further interviews of several Samburu informants. The informants were of various genders, ages, and socio-economic status. The Samburu elders demonstrated a much greater knowledge of common expressions than younger people, including older women who tended to have much more knowledge than younger men. However, in general, men appeared to have more knowledge of language than women.

Each case is linked to daily life and situated in a particular socio-cultural context. For the sake of brevity, however, specific contextual descriptions of the background information in each case were omitted. Data associated with ritual, myth, and folk

tales of the Samburu are noted, but the focus of this study is limited to the pastoral perception of livestock, human, and wild animals.

There are many common similes found in the daily conversation of the Samburu. For example, similes including comparisons with plants and livestock include the following:

He is [as] tall as a *euphorbia* (scientific name: *Euphorbia candelabrum).*
(*Keiodo atwana serai*).
He is [as] lanky as a galingale (scientific name: *Cyperus schimperianus*).
(*Keisas atwana loperriai*).
He is [as] short as a sheep of the Meru [the name of ethnic group].
(*Keidorop atwana nker ee lmero*).
She is [as] beautiful as a cow. He is [as] handsome as a cow.
(*Keisupat teembene atwana nketen*).

Similes including comparisons with wild animals include the following:

He is [as] huge as an elephant.
(*Keisapuk atwana ntonme*).
He is [as] fat as a hippopotamus.
(*Kepirr atwana turka*)
He is [as] clever as a Black-backed jackal.
(*Keigen atwana nbarie*).
He is [as] gluttonous as a hyena.
(*Kelibo atwana nkonoi*).

The Samburu also produce traditional beadwork. The colors of the beads are expressed as similes including the following:

It is [as] green as the pasture.
(*Keinyori atwana nkojet*).
It is [as] blue as the sky.
(*Keisurwa atwana nkai*).
It is [as] white as milk.
(*Keibor atwana kule*).
It is [as] red as blood.
(*Kenyuki atwana lodo*).
It is [as] yellow as egg yolk.
(Keidaarei atwana nkepai)

THE LIVESTOCK-HUMAN METAPHOR

There are several instances of metaphors comparing livestock and humans; indeed, such metaphors are common in pastoral societies (Tani 1976). Among the Samburu, the world of livestock is likened to the world of human beings, and vice verse. For example, children are likened to young goats. For example, a mother may address her son, "*Lukuo lai,*" which means "my young he-goat." A daughter may be addressed as a "*Nkuo ai,*" which means "my young she-goat."

During typical rites of passage, the Samburu themselves recognize and explain the similarity between livestock affairs and human affairs. Unmarried girls are

compared to heifers. When a bridegroom proposes a marriage, he says, "*Katodwa utauo tankan lino*," which means, "I saw a heifer at your settlement." Circumcised youths are likened to oxen. The reason is that although they are circumcised, they are not yet allowed to marry and procreate, just as oxen are castrated and cannot procreate. In several rites of passage called"*Ilmugiet*" youths slaughter oxen, their symbolic metaphor. Old men are likened to bulls because, like bulls, they are allowed to procreate. At the time of death, bulls, bull-goats and bull-rams are slaughtered to symbolize the end of the procreation for the old man. These examples also suggest the importance of fertility in the Samburu view of human life (Konaka 1997: 151).

Additional metaphors among the Samburu liken the tooth extraction in children to cutting the ears of small goats and sheep. Circumcising a boy is comparable to castrating a lamb.

The livestock-human metaphor of a Samburu male may be summarized as follows (Table 1):

A baby calf is likened to an infant.
A male calf is likened to a boy.
An ox is likened to a youth.
A bull is likened to an old man.

The same kind of livestock-human metaphor is applicable to females (Table. 2):

A baby calf is likened to an infant.
A female calf is likened to girl.
A heifer is likened to a circumcised girl.
A cow is likened to a mother.

Table 1. Livestock-human Metaphor (Male)

livestock	human	Transition
baby calf (*lashe nkini*)	infant (*nkerai nkini*)	tooth extraction
male calf (*lashe sitimaa*)	boy (*laieni*)	↓ ear cutting
ox (*lmongo*)	youth (*olmurran*)	↓ circumcision
bull (*laingoni*)	old man (*olpaiyani*)	↓ rite of passage (*ilmugiet*)

Table 2. Livestock-human Metaphor (Female)

livestock	human	Transition
baby calf (*lashe nkini*)	infant (*nkerai nkini*)	tooth extraction
female calf (*lashe lipong*)	girl (*ntito*)	↓ ear cutting
heifer (*utauo*)	circumcised girl (*surmorei*)	↓ circumcision
cow (*nketeng*)	mother (*shiankiki*)	↓ chirdbirth

METAPHORS FOR WILD ANIMALS

The anthropomorphism of wild animals is commonly found in several contexts of the Samburu culture. For example, the Samburu found kinship relationships between various wild animal species. They say, "An African elephant is the maternal uncle of an African hare" and "A black-backed jackal and a dog are sisters."

Characteristics of wild animals are likened to those of humans. A Samburu folk tale illustrates the metamorphosis from human to wild animal: "Side-striped jackals are former initiates to the age set who did not come back to the settlement as expected before dark." This case shows that both humans and wild animals share characteristics, and the categories of humans and wild animals are permeable and transformable in the Samburu culture.

Wild animals are likened not only to human beings but also to livestock. Therefore, a sort of "livestock-morphism" can be found in the Samburu culture" (the word "morphism" is used as in "anthropomorphism" or "zoomorphism"). A Samburu myth, which was collected on August 30, 1999, at the Lorroki Division, Samburu District, provides a good example:

Once upon a time, all wild animals were livestock. Women keep elands as if they were cows and buffaloes. Women also kept Thomson's gazelles, Grant's gazelles, and impalas as if they were small stock (goats and sheep). Elephants helped women to gather firewood. Lions were watchdogs for women. One day, all those animals ran away to become the wild animals that we know today. Women came to be married to men and were presented with livestock from the men.

Contrary to our archeological knowledge that wild animals are domesticated to become livestock, this Samburu myth suggests that livestock preexisted wild animals. A sort of "livestock-morphism" is also reflected in the Samburu taxonomy of wild animals (Table. 3).

The Samburu have five categories of wild animals as follows: Eland, buffalo, and greater kudu belong to the group of cow (ungulates), a sort of Samburu *Bovidae*. Thomson's gazelle, Grant's gazelle, the impala, and the gerenuk belong to the group of goat, roughly a sort of Samburu *Capra*. The common warthog belongs to the

Table 3. Samburu Taxonomy of Wild Animals

Group	Species
Group of cow (The Samburu "*Bovidae*")	Eland (*surwa*), Buffalo (*olosowan*), and Greater kudu (*lmaalo*)
Group of goat (The Samburu "*Capra*")	Thomson's gazelle (*nkoipelai*), Grant's gazelle (*ngolii*), Impala (*ntarawet*), and Gerenuk (*irrigo*)
Group of sheep (The Samburu "*Ovis*")	Common warthog (*lbiturr*)
Group of camel (The Samburu "*Camelidae*")	Giraffe (*lmeot*)
Group of donkey (The Samburu "*Asinus*")	Common zebra (*nkoitiko*) and Gravy's zebra (*loitiko*)

group of sheep. Therefore, it is a sort of Samburu *Ovis*. The giraffe belongs to the group of camel, a sort of Samburu *Camelidae*. The common zebra and Gravy's zebra belong to the group of donkey, a sort of Samburu *Asinus*.

Fig. 1. Somali Fiscal

The Samburu eat beef, mutton and camel meat, but they do not eat donkey meat. This pattern of food preferences also correlates to equivalent wild animal categories. The meat of animals belonging to the groups of cow, goat, sheep, or camel is edible for the Samburu with one exception. Warthogs are not considered edible by the Samburu, although warthogs are classified in the same category as sheep. The Samburu commonly say, "Buffalo meat tastes just like beef" or "Thomson's gazelle meat tastes just like mutton."

A sort of "livestock-morphism" is also reflected in Samburu culture. Several kinds of wild animals are deemed sacred animals, just because they have characteristics similar to those of livestock. The aardvark is an example. The Samburu say, "A man who kills an aardvark with one thrust will get lucky." After the kill, the man is supposed to slaughter a male sheep. Then, he must roast both the aardvark meat and the mutton, side by side. The shape of an aardvark from rump to tail is said to resemble that of a sheep.

On the contrary, several kinds of wild animals are religiously avoided, just because they have characteristics different from those of livestock. The common zebra is an example. The Samburu say that a zebra is not like livestock because it has teeth on both its upper and lower jaws and because the hooves are closed. Therefore, the Samburu have a strong aversion to the zebra meat. If a boy eats a single piece of zebra meat, he is forbidden to enter his house for some days.

The Samburu view of birds also reveals "livestock-morphism." For instance, several kinds of birds are considered sacred because they share characteristics with livestock. One example is the East African bird, Somali Fiscal (*Lanius somalicus).* Its local name, *lkeriketeng* means "a pattern of the cow." That is, the coloration of the Somali Fiscal, white with black spots, resembles the color and pattern of coloration in local cows (Figure 1). Young men search for the bird to find feathers they can use in a headdress to be worn after circumcision.

The Green Winged Pytilia (*Pytilia melba*) is also a sacred bird. Its local name, *lkine*, means a goat. Its awkward manner of walking resembles a goat's gait. Samburu youths also use the feathers of this bird for headdresses.

The Yellow Wagtail (*Motacilla flava*), whose local name, *nchokut*, means herdboy, is also a sacred bird. Like a herdboy, the Yellow Wagtail is always found in the vicinity of the cattle herd upon which it depends for ticks to eat. As with the other sacred birds, its feathers are also sought for headdresses.

DISCUSSION

The cognitive systems of the Samburu can be characterized by a focus on livestock. Several kinds of wild animals are perceived through metaphoric comparisons with livestock. Human beings, in accordance with age and gender, are also perceived through metaphors with livestock.

The classic theory of anomaly and ambiguity proposed by Douglas (1966) is partly applicable also to the Samburu case. For example, eating the meat of a common zebra is avoided because the common zebra has some anomalous characteristics from the livestock category. However, more importantly for the Samburu, livestock forms the center of their sense of normality quite strongly. That is, the Samburu evaluate animals in accordance with the similarity to the characteristics of livestock. The Samburu do not question whether something is normal or abnormal to the order, but ask in what way it is similar to livestock. Therefore, an analysis of the Samburu cognitive system requires that we discard the overall application of the anomaly theory of structural anthropology and instead shift to a theory that emphasizes similarities.

Cognitive scientists have developed the theory of base and target domain (e.g., Holyoak & Thagard 1995) based on the metaphor and similarities. Presumably, base domain may be projected to the target domain. Livestock form a base domain of the cognitive systems of the Samburu. This base domain, based on livestock, is projected to other objects, like human beings and wild animals, as target domains. Therefore, the meat of a wild animal that is considered similar to livestock is considered edible. A bird with coloration similar color to that of a cow is sacred. In this respect, Samburu cognition can be characterized by not only anthropomorphism but also "livestock-morphism." Of course, the reverse is also true in several instances. Nonetheless, the Samburu place a strong emphasis on livestock, and metaphor is quite ubiquitous in Samburu pastoral culture.

Perhaps livestock offers good raw material for a metaphorical way of thinking. It is "good to think," as Lévi-Strauss (1963: 89) pointed out in his work on totemism. In a sense, livestock is the starting point of metaphor. Livestock generates metaphor and culture. Clearly, in order to understand pastoral societies, it is important to recognize the social significance of animals, as generators of metaphor.

Needless to say, the logic of metaphors is based on similarity. If we adopt the logic of sameness, "X is equal to Y," both objects are totally identical. If we adopt the logic of difference, "X is not equal to Y," both objects are totally divergent. Therefore, both kinds of logic provide only a strict cognitive framework.

However, if we adopt the logic of similarity, "X is nearly equal to Y," both objects are loosely and flexibly connected. Of course, the Samburu certainly do not confuse these types of logic. They never confuse livestock and wild animals nor livestock and humans. They totally understand such differences. But at the same time, they feel these different objects share some similarities. Therefore, what they recognize is the similarities among objects belonging to different categories. This is totally different from mere confusion of categories.

Therefore, metaphor connects different objects loosely and flexibly with the logic

of similarity.

To sum up, in the cognitive system of the Samburu, livestock, wild animals, and human beings are not separated, but form an integrated system that is loosely and flexibly connected by the logic of metaphor. To be sure, similarities are no more important than differences, however, because any classification systems require both.

Several myths and customs of the Samburu indicate that even the shift from livestock to wild animals and from human beings to wild animals can happen in the imagined world of the people. The distinctions between livestock, wild animals, and human beings are vague, permeable, and even convertible, because they are loosely tied with the logic of metaphor.

Therefore, given a more fundamental examination of the worldview of pastoralists, the dichotomy of "wild animal versus livestock" or even "humans versus animals" should be reevaluated. Researchers of pastoral society should not presuppose a separation of animals from livestock and humans from livestock. Rather, the cognitive system should be analyzed as an integrated system in which objects are metaphorically interrelated.

Lastly, there are implications for the comparative studies of pastoral societies. In addition to the reconsideration of the dichotomy of wild animal versus livestock and humans versus animals, the dichotomy of small stock versus large stock should also be viewed with fresh eyes. For example, in Samburu society, a person may go to the market to sell large stock and, in turn, purchase small stock with the proceeds (Konaka 1997, 2001, 2006b) or the reverse. Therefore, large stock and small stock are convertible in the market economy.

At several rites of passage, it is required for a Samburu initiate to slaughter an ox, a large stock animal. But, some initiates slaughter a male goat, a small stock animal, instead of an ox. The reason is that it is difficult for an impoverished Samburu to slaughter a large stock animal, which can be sold at a high price, especially after the incessant drought. Furthermore, some poor Samburu do not own any large stock at all. Therefore, at least recently, replacing small stock animals for large stock in rituals is not regarded as a violation of custom. In fact, it is socially approved because the drought and impoverishment are problems that all herders share.

Of course, large stock and small stock have different meanings in terms of social prestige. However, we should not overemphasize the difference, since both are convertible and connected loosely and flexibly with the logic of metaphor.

From this point of view, several assumptions proposed by Stammler and Takakura (see the introduction of this book) are interesting. My research outcome tends to support Stammler's opinion that we should include the significance of nonpastoral animals in our analyses of pastoralists. Introduction of this volume (Stammler and Takakura) notes that among Arctic hunter-herder societies the significance of small stock is partly replaced by game and fish. I can also support the argument on the transition between hunting and gathering and herding and cultivation (Layton et al. 1991) since my research shows that wild animals and livestock are metaphorically connected even in purely pastoral African societies, where hunter-gatherers are socially despised by pastoralists. Although my evidence does not

necessarily substantiate the historical convertibility between hunter-gathers and pastoralists in African pastoral societies, other Samburu researchers (Fumagalli 1977: 71–72; Sperling 1987: 48–49) have also suggested the convertibility between hunter-gathers and herders. Nonetheless, my evidence shows the cognitive premise of the convertibility.

Regardless of whether or not my theory of metaphorical objection and integrated cognitive system may be generalized to other pastoral societies of the Arctic, Africa and Central Asia, metaphor perhaps offers a clue to understanding characteristics of the pastoral society. The fact that objects in the pastoral societies may be connected loosely and flexibly with the logic of metaphor allows us to broaden our comparative perspective.

ACKNOWLEDGEMENTS

I would like to express my gratitude to a number of individuals and agencies as follows. This research was partially supported by Ministry of Education, Science, Sports and Culture, Grant-in-Aid packages for Scientific Research (Scientific Research B, No. 20401010, 2008–2009; Scientific Research on Priority Areas, 2002–2006; Exploratory Research, No. 16652064, 2004–2006; Young Scientists B, No. 14710220, 2002–2003; Scientific Research A, No. 15251010. 2003–2006). The Institute of African Studies, University of Nairobi, kindly cooperated with my research in Kenya. Also, the Nairobi Research Station, Japan Society for the Promotion of Science, offered research assistance. In addition, Professor Simon G. Mathenge, Herbarium, University of Nairobi, helped me to identify botanical specimens. Finally, I am grateful to the many Samburu people who cooperated with me in my research, although I regret to say that I cannot disclose each name for protection of their privacy.

REFERENCES

Introduction (Stammler and Takakura), in this volume

Bird-David, N.
1999 'Animism' revisited: Personhood, environment, and relational epistemology. In *Current Anthropology* 40 Supplement, 67–91.

Conklin, H.C.
1955 Hanunóo color categories. In *Southwestern Journal of Anthropology* 11, 339–344.

Evans-Pritchard, E.E.
1940 *The Nuer: A description of the modes of livelihood and political institutions of a Nilotic people*. Oxford: Clarendon Press,

Descola, P.
1996 Constructing natures: Symbolic ecology and social practice. In *Nature and Society: Anthropological perspectives*, ed. P. Descola and G. Pálsson, 82–102. London: Routledge.

Douglas, M.
1966 *Purity and danger: An analysis of concept of pollution and taboo*. London: Routledge & Kegan Paul.

Durkheim, É. and Mauss, M.
1963 *Primitive classification*. Chicago: Chicago University Press.

Fukui, K.
1979 Cattle colour symbolism and inter-tribal homicide among the Bodi. In *Warfare among East*

African herders: Senri Ethnologocal Studies 3, ed. K. Fukui and D. Turton, 147–177.

Fumagalli, C.T.

1977 *A Diachronic study of change and socio-cultural process among the pastoral nomadic Samburu of Kenya, 1900–1975*. New York: Ph.D. dissertation, State University of New York at Buffalo.

Goodenough, W. H.

1956 Componemtial analysis and the study of meaning. In *Language* 32, 195–216.

Holyoak, K.J. and Thagard, P.

1995 *Mental leaps: Analogy in creative thought*. Cambridge: MIT Press.

Konaka, S.（湖中真哉）

1997 The Samburu livestock market in northcentral Kenya. In *African Study Monographs* 18(3–4), 137–155.

2000 牧畜民の命名技法と経験世界のグローバル化―ケニア中北部サンブルの事例［The naming technique of pastoralists and globalization of experience; The case of the Samburu in north-central Kenya］. In *Shakai Jinruigaku Nenpo* 26, 157–168.

2001 The Samburu livestock trader in north-central Kenya. In *Nilo-Ethiopian Studies* 7, 63–79.

2006a The minor globalization of the petty commodity resources: The Samburu utilization of waste material in north central Kenya. Paper presented at the international symposium "*Towards anthropology of resources*" at Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies, December 9, 2006, Tokyo, Japan.

2006b 牧畜二重経済の人類学―ケニア・サンブルの民族誌的研究［The pastoral dual economy: An ethnographic study of the Samburu in Kenya］. Kyoto: Sekaishisosha.

Lakoff, G. and Johnson, M.

1980 *Metaphors we live by*. Chicago: University of Chicago Press.

Layton, R., Foley, R. and Williams, E.

1991 The Transition between hunting and gathering and the specialized husbandry of resources. In *Current Anthropology* 32 (3), 255–274.

Lévi-Strauss, C.

1963 *Totemism*, trans. R. Needham, Boston: Beacon Press.

Needham, R.

1979 *Symbolic classification*. Santa Monica: Goodyear.

Ohnuki-Tierney, E.

1981 Phases in human perception/cognition/symbolization processes: Cognitive anthropology and symbolic classification. In *American Ethnologist* 8 (2), 451–467.

Republic of Kenya

2001 *Kenya1999 population and housing census* Vol.1. Nairobi: Central Bureau of Statistics, Ministry of Finance and Planning.

Sommer, G. and Vossen, R.

1993 Dialects, sectiolects, or simply lects? : The Maa language in time perspective. In *Being Maasai: Ethnicity and identity in east Africa*, ed. T. Spear and R. Waller, 25–37. London: James Currey.

Spencer, P.

1965 *The Samburu: A study of gerontocracy in a nomadic tribe*. London: Routledge & Kegan Paul.

Sperling, L.

1987 The adoption of camels by Samburu cattle herders. In *Nomadic Peoples* 23, 1–17.

Tani, Y.（谷　泰）

1976 牧畜文化考―牧夫-牧畜家畜関係行動とそのメタファ［Rethinking the pastoral culture: shepherd-livestock relational activities and the metaphor］. In *Jinbun Gakuho*, 42, 1–58. Kyoto: Kyoto University.

Tyler, S.

1969 Introduction. In *Cognitive anthropology*, ed. S. Tyler, 1–23. New York: Holt, Rinehart & Winston.

Establishment of large-scale reindeer herding in the European and West Siberian Tundra

Shiro Sasaki

National Museum of Ethnology, Japan

ABSTRACT

Large-scale reindeer herding, which is typically seen among the Nenets and Chukchee, was established under certain natural and social conditions during the seventeenth, eighteenth and nineteenth centuries. Based on a review of the discussions of I. I. Krupnik, and A. V. Golovnev and G. Osherenko, in this article I consider the timing, environmental factors, process, and social impact of this enlargement of reindeer herding. In addition, I incorporate my own field data gathered in the European tundra and Northern Yakutia. Fundamentally, I support Krupnik's hypothesis regarding the period in which this enlargement took place. I focus, however, on the role of reindeer as labor power, not as food material, in the process of the enlargement of the herd in the eighteenth century among the Nenets people. Under the beneficial climate conditions present during a cooling period, frequent contact with Russians and other foreigners stimulated the demand for reindeer sledge transportation in tundra areas, and the Nenets herders enlarged their herds in order to raise trained reindeer for sledge draught. I theorize that this demand for labor was one of the main factors leading to enlargement of herds. As to the final factors involved in the establishment of large-scale reindeer herding, two additional factors need consideration, namely the extinction of wild reindeer and the appearance of consumers of reindeer meat and fur living outside the herder's community. The results of this process can clearly be seen in the society of the European Nenets and Komi reindeer herders. Following the transition to large-scale herding, their society was differentiated into a set of social classes, former clan organizations were divided into numerous families and other smaller kin groups, and some former herders migrated to islands in the Arctic Sea to engage in sea mammal hunting. The establishment of large-scale reindeer herding was a complex process that involved numerous factors resulting in a variety of changes to the herders' society.

Keywords: large scale reindeer herding, wild reindeer hunting, the Nenets, the Komi, reindeer sledge, labor power of livestock, social differentiation

INTRODUCTION

Reindeer herding or breeding[1] is a particular subsistence, productive, and even com-

[1] Though I do not strictly differentiate my use of the terms, "reindeer herding" and "reindeer breeding," my use of "herding" carries a nuance of herd control, while "breeding" has a nuance of herd maintenance and reproduction. Therefore, I will often use the terms, "large-scale herding" and

mercial activity that is highly adapted to the arctic environment, both natural and social, of the Eurasian North. One aspect that differentiates this from other types of nomadism in steppes and other dry areas, is that people breed only one sort of animal, reindeer (*Rangifer tarrandus*), which are mainly used for labor and meat but also to a lesser degree for milking. The economy of reindeer herders and breeders, however, is not monocultural, but consists of many subsistence and commercial activities. Wild reindeer hunting in the tundra, moose hunting in forest-tundra, sea mammal hunting on and around islands in the Polar Sea, fishing on rivers and lakes, and berry collecting are typical subsistence activities that coexist with reindeer breeding. Reindeer herding and breeding provides support for commercial activities such as the hunting and breeding of fur bearing animals (foxes, polar foxes are often bred for fur production, while sables, martins, weasels, lynxes, ermines, squirrels are the most often hunted animals), commercial fishing, trade, and tourism, offering a form of transport through vehicles such as sledges, or by riding the animals themselves.

There are two types of reindeer herding and breeding, i.e., small-scale and large-scale. The differences between them do not only involve the size of herds or the number of animals in a herding unit, but also the position of these animals in the local economy and society. In societies where small-scale breeding was common, hunting was the primary activity and products from fishing were the main source of food materials, while reindeer breeding occupied a secondary and supplementary status to provide transportation for men and their possessions. Though it is difficult for ethnic minorities to live on traditional subsistence activities in the present globalized economic and social conditions in Siberia and European North, both hunting and reindeer breeding are often considered symbols of the ethnic culture. On the other hand, for large-scale herders, reindeer breeding and herding occupied the primary status in their economy and society. Though hunting and fishing products often played more important roles in the food supply of even the large-scale herders, reindeer and the reindeer herding had a variety of more important social functions, including the role of an ethnic symbol.

In this paper I will discuss some problems concerning the process of the establishment of the large-scale reindeer herding seen among the Nenets people in the European and West Siberian tundra in the eighteenth and nineteenth centuries (the territories of the European and Siberian Nenets in the eighteenth century are detailed in Fig. 1). When did the enlargement of the scale of herding and breeding begin? Why did the people enlarge their herds? What role did the increase of the number of tamed deer play in their economy? What happened in society of these herders during and after this change? These are the questions that at times have been discussed by anthropologists, ethnologists, and historians, who were interested in the reindeer breeding and herding culture of the Siberian indigenous people.

For example, during the 1960s, some Soviet ethnologists were already discussing the process of and reasons for the enlargement of the scale of reindeer herding by the Nenets and Chukchee people. I. S. Vdovin described how the Chukchee reindeer

"small-scale breeding," stressing herd control in the former case and herd maintenance and reproduction in the latter. F. Stammler clearly summarized the discussion on the concept and definition of the terms like "herding," "husbandry," and "breeding." (Stammler 2001: 49-55)

herders enlarged their herds by means of plundering from their Koryak enemies (Vdovin 1965: 17–20). L. V. Khomich insisted that the shortage and extinction of wild reindeer as a resource in the West Siberian tundra had obliged the Nenets people to change their lifestyle and enlarge the scale of their reindeer herding (Khomich 1966: 51). B. O. Dolgikh paid much attention to the regularization of the movement of herds in the case of the Enets people (a neighboring ethnic group of the Nenets) (Dolgikh 1970: 134). I. I. Krupnik outlined a hypothesis stating that the enlargement of the reindeer herding had occurred under advantageous ecological and social conditions (cold climate and social stability) during the late eighteenth century and the beginning of the nineteenth century among the European Nenets and the reindeer Chukchee (Krupnik 1976: 64). Golovnev and Osherenko raised another hypothesis suggesting the enlargement of the Nenets reindeer herding had already begun in the seventeenth century to escape from the control of the Russian Empire (Golovnev and Osherenko 1999: 18).

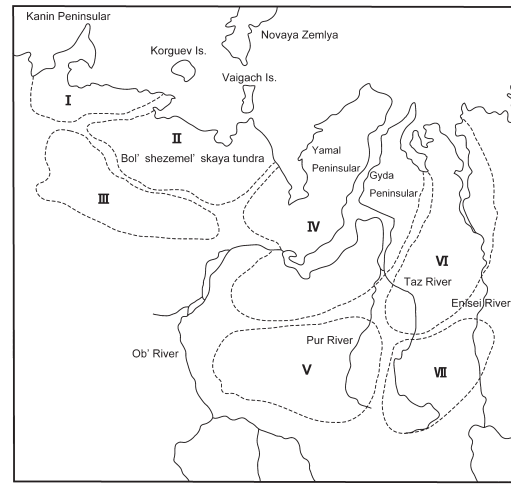


Fig. 1. A map of territories of the Nenets and Enets in the eighteenth century (based on Sasaki 1984: 223)

Krupnik and Golovnev and Osherenko provided some answers to above-mentioned questions. They revealed the entangled relations between the ecological-environmental conditions and socio-political backgrounds surrounding the enlargement of the reindeer herding of the Nenets and the Chukchee. They did not, however, analyze deeply enough the roles and social functions of livestock in the transition process of the reindeer breeding and herding. Therefore, in this paper, I will focus on these two points.

My following discussion is based on the hypothesis that the original type of reindeer herding and breeding was small-scale breeding that played a supporting role for hunting and fishing activities, offering hunters and fishermen methods of transportation that enabled them to move quickly and to carry heavy loads. According to G. M. Vasilevich and M. G. Levin and S. Vainstein, the domestication of reindeer started in the Sayan Mountains or Baikal region during the first millennium B. C. E. under the influence of horse breeding.[2] In the first stage of the establishment of rein-

[2] Problems concerning the start of reindeer breeding have been discussed since the beginning of the twentieth century, when the articles by G. Hatt and B. Laufer were published (Hatt 1919; Laufer 1917). During the first half of this century, many anthropologists and ethnologists participated in

deer breeding, people bred a small number of reindeer for use as packing animals. When the Samoyed speaking and Tungus speaking peoples moved north along the Ob', Enisei, and Lena Rivers, reindeer breeding also spread to Siberia to Chukotka in the east and to the European tundra in the west. When the people reached the tundra areas, they began to use their domesticated reindeer as draught animals for their sledges (Vasilevich and Levin 1951; Vainstein 1970, 1971). As long as they used reindeer mainly for labor, a small herd of reindeer was sufficient and these animals were seldom slaughtered for meat. Fundamentally their subsistence was supported by hunting and fishing.

This situation changed drastically during the eighteenth and nineteenth century. In documents written during this period, one can find that, among the Nenets and Chukchee, a small number of extremely wealthy people owned some thousands of reindeer. During this time, people and society were largely dependent on products and materials from domesticated reindeer, i.e., meat, fur, skin, bones, and antlers. Moreover, in the case of the Nenets, the reindeer products were not only for their own consumption, but also taken to markets to be sold to townspeople. In this paper I will examine the process of this change, focusing on the transformation of the role of domesticated animals and changes in social relations of the herders.

REINDEER BREEDING BY THE NENETS PEOPLE UNTIL THE EIGHTEENTH CENTURY

According to G. M. Vasilevich and M. G. Levin, who classified reindeer breeding by the typology of cultural complexes, Nenets reindeer breeding can be classified as belonging to the Samoyed type (Vasilevich and Levin 1951: 64–71). Characteristics of this type are a) usage of a sledge of the Samoyed type, which has a hard body suitable for driving on the tundra plain at high speeds, b) carrying out large-scale breeding and herding, c) usage of shepherd dogs for watching livestock, and d) castration of livestock by cutting the scrotum. Though this type of breeding can be seen among the Khanty, Mansi, Enets, Selkup, Nganasan, and a part of Saami (groups in Kola Peninsula and the Kolta Saami), the Nenets were the most typical breeders of the Samoyed type.

The Nenets reindeer breeding, however, was not originally large-scale. Some historical documents indicate that until the seventeenth century, the Nenets were tun-

this discussion (see Mirov 1945; Vasilevish and Levin 1951). As to the time of inception, there were two hypotheses. One insisted that the reindeer were one of the first domesticated animals and that reindeer breeding occurred even before the start of the Neolithic age, while the other insisted that reindeer breeding started under the influence of horse or cattle breeding and that this happened no earlier than the late Neolithic. As to the place, there were also two hypotheses; one assumed that breed had independently started and developed in different places, while the other assumed that it had originated in one limited area, from which it had spread over Siberia and Eurasian North. In Soviet anthropology, the discussion was summarized by G. M. Vasilevich and M. G. Levin in their article published in 1951 (Vasilevich and Levin 1951). They supported the second hypotheses for both time and origin and insisted that the Sayan and Baikal areas had been important candidates for the original places of the reindeer breeding. They also provided a scenario of the distribution and routes for the spread of reindeer breeding to the North. S. Vainetein fundamentally supported their hypothesis. Based on his own field data, however, he insisted that the point of origin of reindeer breeding had been in the Sayan area and that the contributor had been the ancestors of the Samoedic people (Vainstein 1970, 1971).

dra hunters whose main subsistence activity was wild reindeer hunting, and that they kept only a small number of domesticated reindeer as draught animals. For example, a Soviet ethnologist, E. I. Kolycheva reported that when a wealthy Nenets, named Topka Lisov in the Bol'shezemel'skaya tundra (a vast tundra that spreads over the European side of the Ural Mountains), had been robbed of his property by some gangsters in 1668, he had declared the following things had been taken: two mammoth tusks, thirty pieces of polar fox pelt of good quality, two sledges for luggage, fifty heads of tamed reindeer, two fishing nets, and two long dresses for men (Kolycheva 1956: 80). Kolycheva said that in those days persons who had owned more than 40 reindeer had been honored as wealthy and that owners of 100 heads had been rare millionaires (Kolycheva 1956: 79). Judging from the fact that Topka Lisov listed fifty tamed reindeer in his declaration of lost property along with mammoth tusks and polar fox pelts, it should be taken that a reindeer herd was generally considered as property in the Nenets society at that time.

In the seventeenth century, the Nenets people, especially in the European tundra, were gradually subjected to the political power of Moscow and began paying *yasak* (a tax of payment of pelts and fur) to the Tsar. At the same time, Russian products such as guns, knives, axes, hooks, needles, and fishing nets, were distributed in these areas and found their way into the daily lives of the people. Thus many Nenets were engaged in the hunting of fur bearing animals like foxes, polar foxes, squirrels, and ermines in order to earn money to buy such things. Some Nenets, like Topka Lisov, became rich through the trade with Russian and other European merchants. However, even wealthy people, who owned much property consisting of precious things such as mammoth tusks, pelts, clothes, and fishing nets, bred only some tens of heads of reindeer in order to train them as draught animals.

I. I. Krupnik classified and defined the lifestyle seen in the tundra area in the seventeenth centuries as "hunter-reindeer-breeders in the tundra." He pointed out following eight characteristics: i) main subsistence activities were hunting and fishing, ii) mobility was lower than that of the present Nenets and Chukchee, iii) seasonal differentiation of subsistence activities was more obvious than in the present, iv) a small number of reindeer were bred for use as vehicles, v) main food materials consisted of wild animals, birds, fish and wild plants, vi) tamed reindeer were slaughtered only in an extreme cases such as famine, vii) clothes and dresses were made of wild deer skin and fur, and viii) dwellings were conical tents covered with wild deer skin in summer and circular dugout houses covered with fur in winter. Other than the Nenets in the seventeenth century, Krupnik counted some other ethnic groups as belonging to this subsistence type, i.e., the Chukchee in the seventeenth century, the Enets in the eighteenth century, the Nganasan in the nineteenth century, and the Yukagir in the beginning of the twentieth century (Krupnik 1976: 60–61).

BEGINNING OF THE ENLARGEMENT OF NENETS REINDEER HERDING

When did reindeer breeding among the Nenets people begin to enlarge in scale? Though some researchers, like N. A. Minenko, and Golovenev and Osherenko, insisted that this had already begun in the seventeenth century (Minenko 1975: 152–

153; Golovnev and Osherenko 1995: 17), I will support the hypothesis proposed by I. I. Krupnik and others that it started as late as the mid-eighteenth century. Some historical documents also support this hypothesis. For example, as mentioned above, E. I. Kolycheva said that even people who were considered wealthy had owned less than 100 reindeer in the seventeenth century. Krupnik indicated that the European Nenets often had paid *yasak* using the fur of wild reindeer (Krupnik 1976: 58–59). J. G. Georgi, a prominent historian and geographer, who did field research among the Nenets (though it is possible he investigated the Siberian group) in the middle of the eighteenth century, reported that the each person had owned 100 to 150 heads of reindeer and these animals were used exclusively for transportation, either for driving sledges or riding, and that the main food for the community consisted of hunting and fishing products. He wrote as follows:

> In general the Samoeds (Nenets) are poor, yet almost everyone has 100 to 150 tamed reindeer. They use their reindeer for riding and pulling hand sledges, and slaughter them only in cases where a reindeer is near death from advanced age or as the result of an accident. They will also sometimes kill healthy calves for sacrifice. They do not know the processes for milking and making cheese, thus the growth of their livestock is good. (Georgi 1776: 280) [translated from German by the author]

Compared with numbers seen in the seventeenth century, the average number of deer owned by individuals increased in the eighteenth century. In Georgi's book, the Nenets people began to be represented as reindeer herders. For example, a picture that portrays a man driving on a reindeer sledge and two women processing a slaughtered reindeer is presented on the first page of the chapter of "Samojedische Nationen." (Georgi 1776: 273) The slaughtered deer may represent a calf for sacrifice. The portrait of a Nenets man, however, does not represent him as a reindeer herder. He has a bow and arrows, and thus it is implied that he is a hunter. These pictures give us an image of the Nenets in the eighteenth century as hunter-reindeer herders. (Fig. 2, Fig. 3)

In the second half of the eighteenth century, a small number of wealthier people began to own herds numbering some thousands of reindeer. For example, V. F. Zuev, who researched around the mouth of Ob River and along the Arctic Ocean in 1771–1772, reported as following:

> ….. they (the Nenets, note by the author) owned 10 (in the case of poorer individuals or families) to 3000 (for the wealthy) well trained reindeer, which they often used for sledge draught and of which they knew every detail, but, aside from these animals, herds of untrained reindeer, which were so numerous that the people did not know the exact number, were grazing in the tundra. (Zuev 1947: 32) [translated from Russian by the author]

The difference between the numbers of tamed reindeer noted in Georgi's and Zuev's reports indicates that a few wealthy people, who owned some thousands of

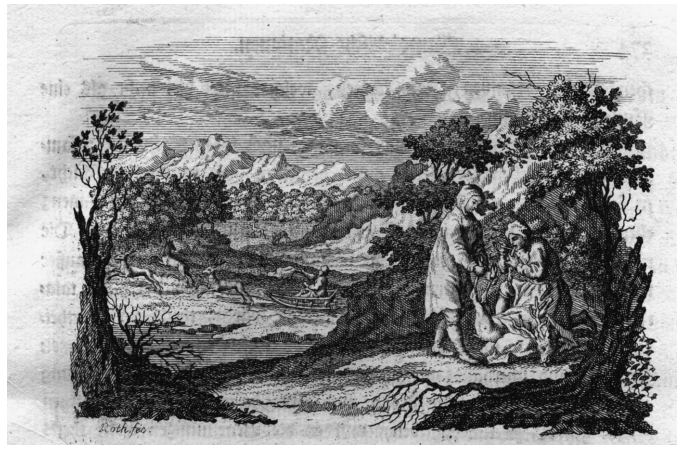


Fig. 2. A picture of Samoeds (Nenets) (Georgi 1776: 273)

reindeer, appeared in the second half of the eighteenth century in the Siberian tundra and that the gap between the rich and the poor enlarged. The same phenomena might also be seen on the European side. According to V. I. Vasil'ev, a Soviet ethnologist and a specialist in the study of Nenets society, the number of heads of tamed reindeer in the European tundra reached 160,000 in the end of eighteenth century (Vasil'ev 1979: 206). Millionaires owned 1500–2000 heads, people in the middle class – 500–700, and in the lower class – 10–20, and those in the lowest class only owned less than 10 heads (Krupnik 1976: 61). This fact, however, does not mean that the Nenets reindeer breeding changed from small-scale to large-scale suddenly during that period. Their main food materials were still wild animal meat and fish. Fish especially played an important role in the Nenets society. V. F. Zuev also discussed the situation that occurred during a famine after a period of unsuccessful fishing.

Fig. 3. A Samoed (Nenets) man (Georgi 1776: 276–277)

> Reindeer breeders, who owned so many livestock that an exact count is impossible, often complained of starvation caused by unsuccessful fishing, just as the poor did. Though these breeders should have slaughtered their reindeer for meat, they never wanted to do it. They waited out the starvation, underwent the poverty, and complained of the food shortages. They, neverthe-

> less, begrudged slaughtering their own reindeer. ……. to their economic sensibilities, fish were classified as the food that comprised their main diet, while the reindeer were property. (Zuev 1947: 68) [translated from Russian by the author]

This report indicates three things. First, for the Nenets, fishing was the most important productive activity, and the shortage of fish often resulted in serious famines. Second, all the Nenets including the wealthy, who owned large herds, were reluctant to slaughter their reindeer. As of the eighteenth century, they still had not established a food system based on the consumption of the meat of their tamed deer. Though the size of the herds were enlarged, their food supply was still wholly dependent on hunting and fishing products in the same way as it was for small-scale breeders. Thirdly, tamed reindeer were recognized as property.

The reluctance to the slaughter of stock can be widely observed in all animal herders. They do not want to kill their animals, not because of their attachment to the animals, but because they recognize the value of their animals as property and a source of labor. This is not only the case for herders of cattle, horses, and other hoofed animals in the steppes and dry areas, but also the case for dog herders and reindeer herders in the Northern Eurasia. In the case of the Nenets reindeer herders, they used their reindeer as labor for sledge draught, and as property for the payment of bride price and ritual slaughter. In their society, only a man, who had enough wealth to pay a bride price, could marry. As even the poor had to pay 10–20 reindeer to the bride's family (Khomich 1966: 165),[3] the payment of the bride price represented a huge burden. Therefore, people supported each other, following the rule of mutual support among relatives. At the same time, a bride's parents sometimes gave their daughter some reindeer as a dowry to help her begin her new life. Such reindeer were recognized as a wife's property, and the offspring of her does were also hers. There were some cases these animals occupied an important place in a family's herd (Brodnev 1959: 76).

As was indicated in the quotation from Georgi's report, calves were at times killed for sacrifice in some rituals. It is possible to see the evidence of these sacrifices, such as reindeer antlers and bones, at sacred places where people carried out rituals to bring luck and prosperity to their family (Khomich 1966: 201; Golovnev and Osherenko 1999: photos). As reindeers were property, they could be both a sacrifice and a present to gods and spirits.

FACTORS FOR THE ENLARGEMENT OF REINDEER HERDS

What conditions enabled the Nenets breeders to enlarge the size of their reindeer herds?

[3] According to L. Khomich, in the middle of the nineteenth century the bride price paid by wealthy people consisted of 100-200 heads of reindeer, 100-200 pieces of polar fox pelts, 1-2 pieces of silver fox and 10 pieces of red fox fur, a piece of expensive cloth of more than 6 meters long, and a copper pot, and that by members of the middle class consisted of 25-60 heads of reindeer, 25-50 pieces of polar fox fur, 1-2 pieces of red fox fur, a piece of cheap cloth of 6 meters long, and a copper pot, while that by the poor consisted of 10-20 reindeer or 7-15 Rubles of silver coins, a piece of cloth of some meters long, and a copper pot (Khomich 1966: 165).

I. I. Krupnik insisted that two factors needed to be taken into consideration: one environmental, and the other social. Reindeer so well adapted themselves to the cold arctic climate that it was advantageous for reindeer breeders to grow their herds in cold climate epochs. According to a study on the history of climate change, there have been two cold epochs in Siberia during the second millennium C.E. One was from the 1570s to 1650s, and the other from 1720s to 1830s (Krupnik 1976: 64). The enlargement of reindeer herds during the time of this second cold epoch has been well documented. Why did this not occur during the first epoch? Krupnik answered this question by looking at social factors.

Siberia was in a state of chaos during the first of these cold epochs, as it was the subject of conquest by Russia at this time. Frequent wars, battles, rebellions, and plundering created instability throughout many Siberian societies. It would have been quite difficult for reindeer breeders to enlarge their herds during such a chaotic period. On the contrary, social conditions were stable during the second epoch, as Russian rule had already been established and, except in Chukotka, the military campaigns were largely over. Breeders were able to expand their activities without the threat of social disorder created by military action. Krupnik wrote;

> The rapid growth of large-scale reindeer breeding in this epoch was a result of effective and appropriate social and ecological change, which was in line with similar processes of economic development in different places throughout the tundra zones of Northern Eurasia. (Krupnik 1976: 64) [translated from Russian by the author]

Golovenev and Osherenko discussed in this change a different way. As mentioned above, they insisted that the enlargement of herds had started in the seventeenth century, i.e., during a period of chaos. They said the following:

> The natives' desire for autonomy from newly established Russian power raised the importance of mobility to retire to remote tundra areas, and this in turn required larger herds. Simultaneously overhunting and consequent scarcity of wild reindeer led to reorientation of the native economy from foraging toward pastoralism. The core transition occurred in the 1600s (Golovnev and Osherenko 1999: 17).

In contrast to Krupnik's hypothesis, Golovenev and Osherenko insisted that disadvantageous or adverse conditions, i.e., the warm climate in the second half of the seventeenth century and the military and political pressure of the Russian Empire, had pushed the Nenets to change their economic strategy.

An important result of Golovnev and Osherenko's research was to reveal that the Nenets people in both the European and Siberian tundra never willingly submitted to Russian power and that they often rebelled against it or escaped from areas in which they would be subject to Russian control, and that the power and energy the Nenets exerted against the Russians played an important role in the change of their economic structure. It is difficult, however, to assume that breeders could safely

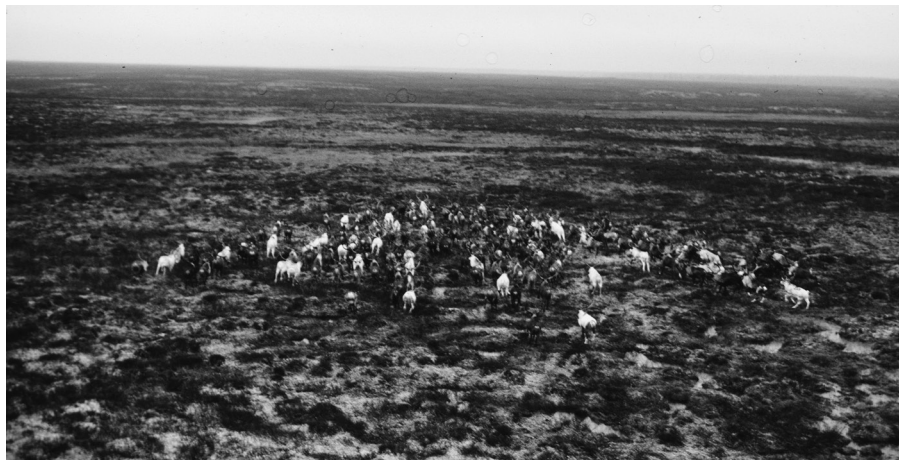


Fig. 4. A herd of castrated reindeer (in Bol'shezemel'sklaia tundra, taken by the author in 1988)

grow newly born calves and swiftly and smoothly enlarge their herds during the chaotic period in the warmer epoch.

Though there is a fundamental difference between the research of Krupnik, and that of Golovenev and Osherenko, both of them assumed that the factors involved in the enlargement of reindeer herds could be found in the natural and socio-political conditions surrounding the people. They did not, however, address concrete factors. In this paper, I will focus on one particular concrete factor: the increase in demand for reindeer as a source of labor. When the people had more opportunity for contact with Russians and other foreigners, regardless of whether this contact was antagonistic or friendly, the demand for the reindeer sledge increased. In wartime, the reindeer sledge was the military equipment best suited to quickly approach and attack an enemy in the tundra and, in peacetime, it was the best vehicle to carry men and commodities for trade. The reindeer's hooves allow them to walk easily on the soft and wet ground of the tundra in summer and reindeer can eat moss and grasses by digging the frozen ground in winter. A sledge is a more advantageous method of transportation in the tundra than a carriage with wheels. A Nenets reindeer sledge is designed for driving on the tundra plain at high speeds. These sledges are usually drawn by two to seven reindeer (Khomich 1966: 91).

Castrated male deer (*habt* in Nenets language) are the best draught animals, though does and even stags can be used (Khomich 1966:91). Castrated deer are powerful and, at the same time, are easily controlled. Castration is done on a calf at the age of three years. This is a significant operation for livestock farmers and nomads who have to control animal herds and use these animals as labor. In order to grow herds of castrated males for labor, it is necessary to breed a certain size of herd. Based on my own field research in Khalp kolkhoz in the Bol'shezemel'skaia tundra on the European side in October 1988, about 180 castrated deer bred for sledge draught were separately grazing near the herders' camp, (Fig. 4) while the mother herd of about 3500 deer was overseen by seven herders in the pasture far from the camp. I think that the size of the mother herd was too large in comparison to that of

the castrated one. The mother herd contained many reindeer to be used for meat, but these animals did not have to contribute the reproduction of draught animals. In my observation in Northern Yakutia in 1998, a private reindeer breeding farm that owned 250 heads as a whole had about 50 castrated mails for riding and sledge draught. In this case, the mother herd did not contain deer to be used for meat (Sasaki 2000: 112). It seems reasonable that a herd of castrated deer for labor should be 15–20% of the number of deer in the mother herd, if the latter does not contain the deer for meat.

As mentioned above, V. F. Zuev witnessed in 1770s that each family had owned 10 to 3000 well trained reindeer for sledges and that huge number of untamed deer had been wandering in tundra. This means that he possibly viewed the well trained deer as those used for labor (sledge draught) and other deer for breeding (not for meat). He also stated that even the wealthy had suffered from starvation in times of famine caused by periods of unsuccessful fishing, and that, nevertheless, they had never wanted to slaughter their tamed deer for meat, even if this meant they had to undergo food shortages. It can be interpreted that the people were not averse to consuming the meat of their own deer, but that they were afraid of losing labor power and property.

Zuev's report indicates that the Nenets people were still at the level of "hunter–reindeer-breeders in tundra zones" in the 1770s, though the enlargement of their reindeer herds had already begun. Therefore, I hypothesize that the increase in demand for teams of reindeer sledges, which was a consequence of the intimate relations (both antagonistic and commercial) to Russians, was one of the factors (social factors determined by I. I. Krupnik) leading to the enlargement of the scale of the Nenets reindeer herding.

If this was, however, a factor in the process of the enlargement of the Nenets' reindeer herds, one question may arise; why did this become a factor in the epoch from the 1720s to 1830s, and not during the period from 1570 to 1650, though the climatic conditions in both epochs were equally cold and suitable for the breeding of reindeer?

According to Golovnev and Osherenko, ancestors of the Nenets people had maintained contact with Russians, especially traders from Novgorod, long before Ermak's conquest of Siberia, and they did not have good relations with the powers in Moscow that destroyed the Novgorod Republic (Golovnev and Osherenko 1999: 48–49). Battles between the Nenets and troops from Moscow had begun in the early 1600s, and they often fought fiercely in the late seventeenth century. Their antagonism to the delegations from Moscow became more pronounced in the eighteenth century, because the latter began to register and baptize the tundra people by force. Golovnev and Osherenko wrote as follows:

> The end of Ermak's epoch was not the end of warfare for Samoyeds. In the early 1700s they remained nominally registered under Russian sovereignty. Undefeated, tundra Samoyeds had used the time to adapt their culture for new conditions. Their adaptation took the form of a transition to pastoralism. (Golovnev and Osherenko 1999: 52)

Though they insisted that "their preparedness for this quick transition in some respect had been developed during the long period of contacts between Samoyeds and Northern (Novgorod) Russians," (Golovnev and Osherenko 1999: 52) I do not think that this transition occurred in the seventeenth century. If the demand for the draught animals increased because of the frequent wars, the climate condition was not advantageous for the breeding during the second half of the seventeenth century and the beginning of the eighteenth century, as the first cold epoch was already over. On the contrary, during the eighteenth century (aside from the first twenty years), the climatic condition was beneficial for reindeer breeding in the second cold epoch, and the demand for reindeer sledges was still growing, because contact with the Russians (both antagonistic and peaceful) became more common and intimate. The synchronization of these two factors (climatic and social) enabled some people to rapidly enlarge their herds, and, as a result, the property gap between owners of larger herds and smaller herds became more considerable.

THE TRANSITION PROCESS AND ESTABLISHMENT OF THE LARGE-SCALE HERDING

In contrast to the assumption of Gorovnev and Osherenko, I do not think that the transition process from foraging to pastoralism advanced in such a rapid manner. I. I. Krupnik insisted that the establishment of large-scale reindeer breeding had consisted of a series of changes in the process of the local economic system and that it had consisted of four steps; an increase in the number of heads of domesticated reindeer, the extinction of wild reindeer, a change in staple food, and the establishment of a productive economy (Krupnik 1976: 64). The extinction of wild reindeer was the most important factor leading to the fundamental change in economic strategy and structure.

Wild reindeer had been one of the principally hunted animals and one of the staple foods of the tundra dwellers. Their fur was used for clothes, tent covers, and cushions, as well for the payment of tax to the Russians. Not only the Nenets in the sixteenth and seventeenth century, but also the Chukchee in the seventeenth century, Nganasan in the nineteenth and early twentieth century, and the Tundra Yukagir in the early twentieth century were known as wild reindeer hunters (Krupnik 1976: 60–61). Even today, wild reindeer are actively hunted in some areas. For example, the Evens and Evenks (both Tungus speaking ethnic groups) in the northern part of Yakutia (Republic of Sakha) often engage in wild reindeer hunting (Sasaki 2003; Ventsel 2006; Takakura 2008). According to the reindeer herders and hunters, wild deer are pest animals that disrupt reindeer breeding, because they often attract the tamed deer and cause them to leave the herd, thus incurring serious economic damage on the herders (Sasaki 2003: 114; Takakura 2008: 12). Especially in the mating season, wild bucks often attract does.

Biologically, there is little difference between tamed and wild deer, but the latter are independently active, while the former are accustomed to being controlled. Therefore, when a group of wild deer comes across a herd of tamed deer, the two groups mingle together and many times the tamed deer wander off, led away by the

wild deer. Reindeer herders often make every effort to avoid this situation and hunt wild deer when they see them near the herd. Though some herders are excellent hunters, in many cases herders hire professional hunters to hunt the wild deer. Of course, wild deer hunting is done with an economic purpose to protect their food supply and monetary income (Sasaki 2000: 108; 2003: 113).[4]

Factors involved in the extinction of wild reindeer have also often been discussed by ethnologists. As mentioned above, L. Khomich and Golovnev and Osherenko insisted that the overhunting of these animals had been the main factor (Khomich 1966: 51; Golovenv and Oshrenko 1999: 17). I. I. Krupnik, pointing out the importance of the rivalry between tamed and wild deer for good pastures, insisted that tamed deer took advantage of human support to drive the latter away (Krupnik 1976: 65). Taking into consideration, however, that many reindeer herders considered the wild deer harmful to their herds, we should reevaluate the significance of the hunting. Unlike Khomich, Golovenev, and Osherenko, I think that the extinction of wild reindeer was not a mere result of overhunting, but, possibly, a result of active extermination by humans for the protection of their herds. This especially is more possibly the case in the European tundra, where wild reindeer were swiftly eradicated during the late eighteenth century and the early nineteenth century.

The "hunter-herder continuum" in the northern tundra is a subject of discussion. Opposing the strict hunting/gathering vs. herding distinction outlined by T. Ingold (Ingold 1986: 11), A. Ventsel, based on his own field research in the Anabarskii ulus (district) in northern Yakutia, insisted that, "the combination of herding and hunting is not necessarily contradictory, but the two should be seen as separate economies within one economic setting." (Ventsel 2006: 71) I agree with Ventsel's view, as I witnessed this continuum in my field research on the Alazeya River basin in the Cherskii ulus (district) and on Omoloi River basin in the Eveno-Bytantai ulus in northern Yakutia. In the former case, a private reindeer-herding farm employed both herders and hunters who were specialists in each of their fields; the hunters could not lasso animals, while herders were not good marksmen. In the latter case, a foreman on a reindeer herding farm was an excellent hunter as well, and he always led the workers at his farm in both herding and hunting (Sasaki 1996; 2000). H. Takakura also witnessed the hunter-herder continuum in Olenek ulus in the north-western Yakutia. After the failure of many reindeer herding farms during the economic crisis following the collapse of the Soviet Union, the people switched their main productive activities from herding to wild reindeer hunting (Takakura 2008: 12).

The expansion and distribution of large-scale reindeer herding, however, creates a situation that is adverse to the perpetuation of wild reindeer habitats. This opposition can be defined as a struggle between pressures from human activity and natural habitats, if one assumes that the establishment of large-scale herding, especially the

[4] During the severe economic conditions after the collapse of the former Soviet Union, sales of the wild reindeer products such as meat and fur no longer yielded monetary income and profit. The factors that have created this situation are the dysfunction of the state monetary system and an increase in the cost of fuel and transportation, but not in the prices of products hunted in the wild, caused by hyperinflation. Since that time, wild reindeer meat has often been distributed through nonmonetary exchanges within a kin group or a small local community (see Ventsel 2006, Ziker 2006).

commercialized herding in the European tundra and the industrial herding under the socialist economy in the former Soviet Union, plays a role in the economic development of the tundra. In other words, the pressure from development as a result of human activity encroaches on the habitats of wild reindeer, and this will happen in any area where large-scale herding is successfully managed and readily accepted by the people. Herders will actively hunt wild deer to protect their herds and to support their food supply, while the domesticated deer will dominate the pastures that the wild deer need for food. As a result of this dual pressure from both humans and domesticated reindeer, wild reindeer will be wiped out, and this will lead to the full establishment of pure large-scale reindeer herding not dependent on wild reindeer hunting. As was pointed out by E. E. Syroechkovskii, inevitably "the period of development of domestic reindeer breeding was accompanied by a reduction in the population of wild reindeer." (Syroechkovskii 1995: 42) Though the number of wild reindeer increased in Siberia and the European tundra during the 1960s, 70s and 80s, according to the list shown in his study (Syroechkovskii 1995: 9–10), this was a result of the policy for protection of wild deer and the regulation of hunting and herding.

On the contrary, however, when the management of reindeer farming breaks down and many people begin to give up large-scale herding, the wild deer push back against human encroachment and enlarge their habitats. Though some hunters will stay in these areas to continue hunting, many herders will lose their reindeer and their jobs and leave the pastures along with their families. Such a phenomenon was often seen on reindeer herding farms in Siberia and the Russian Far East after the collapse of the Soviet Union. This can also explain the increase in the wild deer population and the recovery or enlargement of their territories in 1990s.

The situation of the European Nenets and the Komi herders in the eighteenth and nineteenth centuries is an example of what occurs when large-scale herding is successful. When the wild reindeer were purged from the European tundra as a result of pressure from human development, pure large-scale reindeer herding was finally established. In the Siberian tundra, this pressure was blocked, however, by the strength of the wild deer at the mouth of the Enisei River. The same pressure on wild reindeer from human development began to build in Chukotka and Kamchatcka during this time. However, this development was also blocked by the strength of the wild deer in northern Yakutia. This process can be clearly seen in the extinction of the wild deer in northern Europe and Siberia. According to Krupnik's research, the earliest cases were seen in the European tundra and Kamchatka Peninsula. It was in the early nineteenth century. In Chukotka wild deer were wiped out in the middle of the nineteenth century and in Kola Peninsula and northern Yakutia in the early twentieth century (Krupnik 1976: 65). As a result, until the early twentieth century, the only place where many wild deer survived was the Taimyr Peninsula and its surrounding areas. The recovery of the wild deer population in other areas was seen only after the 1950s, when the protection policy began to take effect.

The hunting-herding continuum, proposed by A. Ventsel, can be maintained, when the pressure from human development and the counter-pressure exerted by the wild reindeer compete with other and keep a balance. In other words, the process of establishing large-scale herding is still continuing at this stage. When the bal-

ance collapses and human activities overpower the wild deer, people will succeed in the establishment of pure large-scale reindeer herding. When the pressure exerted by the wild deer overpowers development, however, this will allow the deer to expand their habitats. In this case the people will have to give up large-scale herding, and some will live on hunting wild reindeer, while the others will have to relocate or find other employment.

When large-scale reindeer herding was completely established, two different economies appeared, i.e., self-consumption oriented (or traditional distribution oriented) and commercial oriented. The reindeer herding of the European Nenets was typical of the latter. Their huge numbers of reindeer were bred not only to provide food for their own consumption, but also to sell meat to markets in towns. Some materials shown by V. G. Bogoraz and I. I. Krupnik indicate this fact. For example, Bogoraz presents a list indicating areas of productivity of reindeer herding in Siberia, which he reevaluated into rubles on the basis of results from the first census of the Soviet Union in 1926–27. In this list, he proved that sales of reindeer products had occupied an important position in all the production from the reindeer herding of the Nenets (22.9%), Komi (42.4%), and Saami (28.6%), while it had been less significant for the Chukchee (13.8%), Koryaks (3.3%), and Evenki (3.0%) (Bogoraz 1932: 42; Sasaki 1999: 528) (see Table).

Krupnik reconstructed the balance of the food supply of the European Nenets in the 1920s and compared it with that of different groups of the Chukchee. According to his table, reindeer meat comprised only 35.1% of necessary caloric intake in the case of the European Nenets, while it occupied 57–80% for the Chukchi groups. On the contrary, purchased food materials (bread, flour, liquor, and other high calorie food) comprised more than 50% of the caloric intake for the Nenets, while it occupied only 1–4% for the Chukchee (Krupnik1989: 106). This record indicates that the food supply of the Nenets people was largely dependent on purchased materials and that their life was deeply integrated into the local market economy. Sources indicated that there were many older immigrants, who were not reluctant to con-

Table: Ratio of the sales of reindeer products in all the production of reindeer breeding in 1926

	All the production (a) (in Rubles)	Sales of products (b) (in Rubles)	Ratio b/a (%)
All the Siberian herders	3,587,481	633,168	17.6
Non-nomadic peoples	285,655	44,490	15.6
Nomadic peoples	3,301,826	588,678	17.8
Chukchee	650,212	89,636	13.8
Koryaks	136,469	4,518	3.3
Nenets	998,687	228,228	22.9
Evenki	451,291	13,421	3.0
Komi	477,253	202,273	42.4
Saami	55,234	15,810	28.6
Others	532,680	34,792	6.5

Source: Bogoraz 1932: 42; Sasaki 1999: 528

sume the reindeer meat and skin, on the European side and neighboring areas in Siberia.

In the establishment of this type of reindeer herding and economy, the Komi people played an important role. The Komi are one of the groups who speak the Uralic language and their main subgroups live in the Komi Republic. Some of them, however, extended the areas in which they settled to the European tundra, which was the homeland of the European Nenets, and began to engage in large-scale reindeer breeding at the end of the eighteenth century. As they were wealthy and commercially savvy people who were adept at the management skills required for stock farming, they soon bought large numbers of the tamed deer found in the European tundra and thus became extremely wealthy owners of great herds. According to the study of V. I. Vasil'ev, though 150,000 heads were owned by the Nenets herders and 10,000 by the Komi at the end of the eighteenth century, only 30,000 heads were left in the ownership of the Nenets herders, while 124,000 heads were under the control of the Komi owners by the middle of the nineteenth century. At the end of that century, the Nenets herders owned 47,000 reindeer as a whole, while the Komi owned 229,300 (Vasil'ev 1979: 206–207). According to V. G. Bogoraz, at the end of 1926, 410 households of Komi herders owned 167,964 heads (average number of reindeer owned by a household was 409), while 2,194 households of Nenets herders (including both European and Siberian Nenets) owned 439,842 heads (average number was 200) (Bogoraz 1932: 42).

At the same time as large-scale herding was being established, the gap in the level of livestock ownership between the rich and poor grew wider. Some documents indicate that a few wealthy families (including the Komi owners) that comprised only 17.2% of the population owned 75.4% of all the reindeer in the Bol'shezemel'skaya Tundra (Prokof'eva 1956: 562). Wealthy owners employed impoverished herdsmen to oversee their herds and manage their farms. Especially, Komi owners, who were not familiar with techniques for breeding and herding reindeer, often turned over the control of their reindeer to experienced Nenets herders (Vasil'ev 1979: 206). As the Komi people played a leading role in the establishment and development of large-scale herding on the European side, we can see that even now some local leaders come from this ethnic group.

SOCIAL AND DEMOGRAPHIC IMPACT OF THE ESTABLISHMENT OF LARGE-SCALE REINDEER BREEDING

The establishment of large-scale breeding and the changes in the economic structure had a strong impact on the Nenets society. Some of the more notable results of these changes in the European Nenets society are as follows.

a) Rapid increase in population.
b) Segmentation of large clans into lineages and families, and division of clan territories.
c) Promotion of social differentiation and the widening gap between rich herd owners and others.
d) Population movements toward towns in the south and islands in the Arctic

Sea in the north.

The change of the economic structure (foraging to pastoralism) resulted in a population explosion. The commercial oriented pastoral economy improved the availability of foodstuffs and allowed the feeding of a greater population. According to I. I. Krupnik, the population of the European Nenets enlarged from about 1400–1500 in the seventeenth century to 5500–6000 in the nineteenth century (Krupnik 1976: 68–69; Krupnik 1989: 158–159). The same phenomenon can be seen among the Chukchee people. Though such a drastic change could not be seen on the Siberian side, the population of Nenets in the Yamal and Gyda Peninsulas increased two to threefold when they transformed their economy from a foraging structure to pastoralist one.[5]

The appearance of a few owners who possessed extremely large numbers of livestock changed the social relationships in this region. Until the eighteenth century, when there were only 10 to 150 reindeer to a person or family, the people were roughly integrated into clans (*yerkar*), in which their members were considered to share common ancestors that could be found in their genealogy, ascending along paternal lines. As a rule, members had equal status and were expected to support each other without any qualifications. A clan had its own hunting territory and pastures, which its members could equally and exclusively use for hunting and reindeer herding (Brodnev 1950: 93; 1959: 70; Dolgikh 1970: 93).

The enlargement of reindeer herds created gaps in the social status between even members of the same clan. Though, at first, wealthier people supported poorer clan members, observing the rule of mutual support, the former gradually changed their attitude regarding the latter and employed them as laborers. According to documents written at the beginning of the twentieth century, some of the poor were obliged to work for wealthy owners receiving very little salary in compensation (M. M. Brodnev showed us the case in Yamal Peninsula (Brodnev 1950: 98). The poor also lost equal rights to share the clan's territories and pastures. Wealthy owners of large herds often occupied good pastures, excluding other members of the clan, and this resulted in the division of the former clan territories. On the other hand, middle class herdsmen, who owned some tens or hundreds of reindeer, often integrated several families together regardless of their clan membership in order to establish cooperatives to manage their herds and protect their pastures from being taken over by rich herders (Vasil'ev 1979: 149; Brodnev 1959: 72).

Unequal distribution of wealth and property, division of the former clan territories and pastures, and the establishment of new herding and management units transformed the clan organization. Some large clans lost their bonds of membership and were divided into various regional subgroups, which would later become independent groups. For example, on the European side, the Lehe clan, which had been one of the largest clans since the seventeenth century, bore four subgroups like Syadyei-Lehe, Wylka-Lehe, Pyrelka-Lehe, and Unakan-Lehe in the nineteenth century. These later gave up the bond to mother clan and dropped "–Lehe" designation from

[5] According to materials detailing the population of the Siberian Nenets, their population changed as follows: 5,731 in 1897, 7,057 in 1911, and 13,454 in 1939 (Turchaninov 1914: 80; Khomich 1980: 72).

Fig. 5. Varnek: A Nenets village of sea mammal hunters (in Vaigach Island, taken by the author in 1988)

their names. The small clans split further and bore some kin groups that carried their own family names. By the end of the nineteenth century, the European Nenets were not registered under clan names but rather under family names in administrative documents (Vasil'ev 1979: 145–146).

The social differentiation encouraged movements of the population. The wealthy herd owners and cooperatives of middle class herdsmen occupied vast pastures and engaged in the regular seasonal movements of their herds. Small herd owners and members of the proletariat had two alternatives: to relinquish their lives on the tundra, or to stay. In the latter case, the people made every effort to acquire reindeer and enlarge their herds, earning money by engaging in hunting and fishing or working on other herder's farms. In the former case, people either went to towns to search for new work or immigrated to islands in the Arctic Sea to begin new lives as sea mammal hunters. Though the Nenets sea mammal hunters were not as prominent as the maritime Chukchee, they have played significant roles in the Nenets society on the European side since the middle of the nineteenth century. According to V. I. Vasil'ev, the Nenets sea mammal hunters began to live on Kolguev Island in the 1840s and in Vaigach and Novaya Zemlya Islands in 1870s (Vasil'ev 1979: 151–152). Though they had no reindeer, they had no trouble with transportation, as they could breed dogs using seal meat as feed. Moreover, they could even support reindeer herders, offering them sea mammal products such as seal meat, fur, and lassos of seal skin.

Such communities can be still seen on Vaigach Island. When I conducted field research on this island in 1988, about 20 households of sea mammal hunters lived in a village named Varnek located at the southern edge of the island (Fig. 5). They drove dog sledges instead of reindeer sledges and exchanged sea mammal and reindeer products with reindeer herders on the island. Though the reindeer herders (there were 3 households) and sea mammal hunters lived separately, engaged in different work, and produced different kinds of products, they were tied though kinship, supported each other, and organized and managed one collective farm (kolk-

hoz).

Compared to the drastic change in society of the European Nenets, that of the Siberian Nenets was gradual. The transition process took 100–150 years and during this time the population growth was not as extreme as that of the European Nenets. The population expanded to two to three times its level before the transition (Krupnik 1976: 67). The change in the clan system was not as drastic as the one in case of their European neighbors either. While the system itself collapsed on the European side, not only clans but also two exogamic clan groups (Kharyuchi group and Vanuita group) were maintained after the transition in Siberia, though some huge clans such as the Kharyuchi and Vanuita broke apart into some smaller clans (Vasil'ev 1979; Sasaki 1984). The population movement was also less obvious. Though both the European and Siberian Nenets experienced the same changes in their reindeer herding and breeding, the social impact was different for these two groups.

CONCLUSION

Based on the above discussion, the process of the establishment of large-scale reindeer herding of the Nenets can be summarized as bellow.

(**a**) Until the seventeenth century, the Nenets people on both the European and Siberian sides can be defined as hunter-reindeer herders in tundra areas, who lived by wild reindeer hunting, fishing on rivers and lakes, and small-scale reindeer breeding with herds of less than 100 head per household. They bred reindeer for labor, as draught animals for sledges, and owned them as property. The main productive activities during this period were wild reindeer hunting, fishing, and gathering, while reindeer breeding occupied a secondary position and functioned as support for the other activities. Though the Nenets people already had contact with Russians (e.g., from Novgorod and other northern areas of Russia), the relations remained at the commercial level, and no country was subordinated to the power of another.

(**b**) In the seventeenth century, with the start of the expansion of Moscow's power into the Arctic tundra, the relationship between the Nenets and the Russians began to shift from a peaceful and commercial one to political and military one. When conflicts escalated and battles began to occur in the tundra in the second half of the century, reindeer transportation gained appeal for its strategic use in battles with the Russian forces. It was not easy, however, for herders to enlarge their herds to strengthen reindeer breeding during that period, because the first cold climate epoch (1570–1650) had ended.

(**c**) In the eighteenth century, contact between the Nenets and Russians became much more intimate and frequent, as the Russian government began to send governors and missionaries to the North to rule and baptize the Nenets. The people often reacted fiercely to such activities. By the end of that century, however, many people had been subjected to Russian rule and were baptized, though only formally and superficially, as Christians. The intimate and frequent contact (both antagonistic and commercial) increased the demand for reindeer transportation, for which a certain number of well-tamed deer had to be bred and trained. At the same time, the cli-

matic conditions were advantageous for reindeer breeding during that century, as the second cold epoch began in the 1720s. This synchronization of natural and social conditions enabled the people to enlarge their herds.

(**d**) The gap between the sizes of the herds of wealthy owners and poor herders also enlarged. A few very wealthy people began to keep some thousands heads of reindeer for labor and as property, while poor people, who comprised most of the population, owned only around 10 animals. Though the number of tamed reindeer increased, the Nenets people were not yet complete pastoralists, because their subsistence and economy were still wholly dependent on fishing and wild reindeer hunting. When fishing was poor, even wealthy people faced starvation, as they were reluctant to slaughter their tamed deer for meat.

(**e**) While the primary factor leading to the beginning of the enlargement of the reindeer herds was the increase in demand for reindeer transportation (sledge draught animals), the factor that enabled the establishment and success of pure large-scale reindeer herding was the extinction or eradication of the wild reindeer. As the wild deer died out or were wiped out, the Nenets main (both real and conceptual) source for food and materials for daily use changed from the meat and fur of wild deer to that of tamed deer. As a result, reindeer breeding and herding began to take the place of the wild reindeer hunting, i.e., the primary productive activities. If it can be assumed that the establishment of large-scale herding played a role in economic development, the complete conversion to large-scale herding implies that the pressure from this development finally destroyed the wilderness habitats of wild reindeer.

(**f**) The establishment of complete large-scale reindeer breeding can be defined as the transition from foraging to pastoralism from the point of view of the form of production. This change was especially drastic among the European Nenets, who experienced the earliest extinction of wild reindeer (in the beginning of the nineteenth century). Moreover, the Komi people, who began to engage in reindeer breeding at the end of the eighteenth century, played an important role in the establishment and development of commercial oriented large-scale herding, in which reindeer were bred for the production and sale of meat and skin. This movement increased the pressure on wilderness areas caused by development.

(**g**) The establishment of commercial oriented large-scale reindeer herding and the rapid transition to pastoralism resulted in serious social changes in the European tundra. First, the population grew to four to five times the size it was before the transition. Secondly, the people were differentiated into various classes such as wealthy large herd owners, independent herders with middle-size herds, employed herders with small herds or no herds, urban proletariats, and sea mammal hunters. Thirdly, former clans were divided into sub-clans and small kin groups that shared only a family name, and subsequently, the system of land use regulated by the former clan system was transformed. Fourthly, there were large movements of segments of the population. People who lost their reindeer often quit reindeer breeding, and either went to towns to look for other work or moved to costal areas and islands on the Arctic Sea to engage in sea mammal hunting. The immigration to the islands of Korguev, Vaigachi, and Novaia Zemlia was seen in the mid nineteenth century dur-

ing the process of this transition.

(h) On the contrary, the transition process occurred more slowly on the Siberian side, because the extinction of the wild reindeer happened much later and the spread of commercial oriented large-scale herding took more time than it did on the European side. The process was accomplished during the last years of the nineteenth century or the beginning of the twentieth century among the Siberian Nenets. In other words, the pressure of development from human activity exerted by the Siberian Nenets was weaker than that of the European Nenets and Komi, while the pressure against development from the wild reindeer was much stronger. The former was often blocked by the latter, and the hunter-herder continuum was sometimes seen in places where both of these forces competed and established a balance.

REFERENCES

Bogoraz, V. G. (Богораз, В. Г.)
1932 Северное оленеводство по данным хозяйственной переписи 1926–1927 гг. [Northern reindeer herding on the mterials from the economic census in 1926–1927]. In *Sovetskaia etnografiia* 1932(4), 26–62.

Brodnev, M. M. (Броднев, М. М.)
1950 От родового строя к социализму (По материалам Ямало-Ненецкого округа) [From clan sciety to socialism: based on the materials of Yamalo-Nenets district]. In *Sovetskaia etnografiia* 1950(1), 92–106.
1959 Из истории земельных и имущественных отношений у ямальских ненцев [History of land and property ownership of the Nenets in Yamalo Peninsula]. In *Sovetskaia etnografiia* 1959 (6), 69–79.

Dolgikh, B. O. (Долгих, Б. О.)
1970 *Очерки этнической истории ненцев и энцев* [A study on the ethnic history of the Nenets and Enets]. Moscow: Nauka.

Georgi, J. G.
1776 *Beschreibung aller Nationen des Russischen Reiches, ihrer Lebensart, Religion, Gebräuche, Wohnungen, Kleidungen und übrigen Merkwürdigkeiten* [Description of all the nations of the Russian Empire, their lifestyle, religion, customs, housing, clothing, and other oddities]. St. Petersburg: Carl Wilhelm Müller.

Golovnev, A. V. and Osherenko,G.
1999 *Siberian survival : the Nenets and their story.* Ithaca, NY: Cornell University Press.

Hatt, G.
1919 Notes on reindeer nomadism. In *Memoirs of the American Anthropological Association* 6(2), 75–133.

Ingold. T.
1986 *The Appropriation of Nature: Essays on Human Ecology and Social Relations*. Manchester: Manchester University Press.

Khomich, L. V. (Хомич, *Л.* В.)
1966 *Ненцы: историко-этнографические очерки* [Nenets: Historical-ethnographicoutlines]. Leningrad: Nauka.
1980 Ямало-Ненецкий автономный округ (к 50–летию образования) [Yamalo-Nenetskii avtonomous district (for the 50–year aniversary)]. In *Sovetskaia etnografiia* 1980 (4), 67–77.

Kolycheva, E. I. (Колычева , Е . И .)
1956 Ненцы европейской России в конце XVII – начале XVIII века [Nenets of European Russia in the end of the seventeenth century and the beginning of the eighteenth century]. In *Sovetskaia etnografiia* 1956(2), 76–88.

Krupnik, I. I. (Крупник , *И . И* .)
1976 Становление крупнотабунного оленеводства у тундровых ненцев［Establishment of the large scale reindeer herding of the Tundra Nenets］. In *Sovetskaia etnografiia* 1976(2), 57–69.
1989 *Арктическая этноэкология*［Arctic ethnoecology］. Moscow: Nauka.
Laufer, B.
1917 The reindeer and its domestication. In *Memoirs of the American Anthropological Association* 4(2), 91–147.
Minenko, N. A. (Минеико, Н. А.)
1975 *Северо-Западная Сибири в XVIII – первой половине XIX в: историко-этнографиче– ский очерк*［North-western Siberia in the eighteenth and the beginning of the nineteenth centuries: Historical-ethnographic outlines］. Novosibirsk: Nauka.
Mirov, N. T.
1945 Notes on the domestication of reindeer. In *American Anthropologist* 47(3), 393–408.
Prokofeva, E. D. (Прокофьева, Е. *Д*.)
1956 Ненцы［The Nenets］. In *Peoples of Siberia*, ed. Levin, M. G. and L. P. Potapov, 608–647. Moscow and Leningrad: Academy of Sciences of USSR.
Sasaki. S.（佐々木史郎）
1984 ネネツ族の社会：トナカイ飼養の発展とその影響［A society of the Nenets: Development of the reindeer breeding and its social influence］. In *Minzokugaku-Kenkyu: The Japanese Journal of Ethnology* 49(3), 203–232.
1996 クストゥールにおける野生羊猟の過程［A process of the Siberian big horn hunting in Kustur］. In *Siberia he no manazashi*, ed. S. Saito, 137–155. Nagoya：Nagoya City University.
1999 トナカイ多頭飼育の生産［Productivity of the large scale reindeer breeding］. In *Eurasia yuboku shakai no rekishi to genzai* (Bulettin of the National Museum of Ethnology Special Issue 20), ed. M. Matsubara, Y. Konagaya, and S. Sasaki, 517–540. Osaka: National Museum of Ethnology.
2000 クストゥール村周辺での狩猟活動の歴史と現状―サハ共和国北部エヴェノ・ブィタンタイ地区での調査から［History and present of hunting activities in Kustur: A case study of Eveno-Bytantai urus in Northern Yatia］. In *Siberia he no manazashi* Ⅱ：*Siberia shuryo bokuchikumin no ikinokori senryaku*, ed. S. Saito, 99–120. Nagoya: Nagoya City University.
2003 Changes of Hunting Systems and Strategis in Post-Soviet Yakutia: A Case Study of Eveno-Bytantai District. In *Indigenous Ecological Practices and Cultural Traditions in Yakutia: History, Ethnography and Politics*, ed. H. Takakura, 89–119. Sendai: Center for North Eastern Asian Studies, Tohoku University.
Stammler, F.
2005 *Reindeer Nomands Meet the Market. Culture, Property and Globalization at the 'End of the Land'*. Berlin: Lit Verlag.
Syroechkovskii, E. E.
1995 *Wild Reindeer.* Lebanon, New Hampshire: Science Publishers.
Takakura, H.（高倉浩樹）
2008 エヴェンキ：トナカイ飼育の崩壊と狩猟への転換［Evenki: Collapse of the reindeer herding and switch to the reindeer hunting］. In *Kikan Minzokugaku* 124, 8–13. Osaka: National Museum of Ethnology.
Turchaninov, N. V. (Турчанинов, Н. В.)
1914 Население Азиатской России: Статистический очерк［Population in the Asian Russia: Statistic data］. In *Aziatskaia Rossiia*, vol. 1, 64–92.
Vainshtein, S. I. (Ваинштеин, С. И.)
1970 Проблема происхождения оленеводства в Евразии I (Саянский очаг одомашнивания оления)［Problems on the origin of reindeer breeding in Eurasia I (Hypothesis of Sayan origin of the reindeer domestication)］. In *Sovetskaia etnografiia* 1970(6), 3–14.

1971 Проблема происхождения оленеводства в Евразии II (Роль саянского очага в распространении оленеводства в Евразии) [Problems on the origin of reindeer breeding in Eurasia II (Role of Sayan area in the distribution of reindeer breeding in Eurasia)]. In *Sovetskaia etnografiia* 1971(5), 37–52.

Vasilevich, G. M. and Levin, M. G. (Василевич, Г. М. и М. Г. Левин)

1951 Типы олемеводства и их происхождение [Types of reindeer breeding and their origins]. In *Sovetskaia etnografiia* 1951(1), 63–87.

Vasil'ev, V. I. (Васильев , В . И .)

1979 *Проблемы формирования северо-самодийских народностей* [Problems on the formation of Northern Samoedic peoples]. Moscow: Nauka.

Vdovin, I. S. (Вдовин, И. С.)

1965 *Очерки истории и этнографии чукчей* [Outlines of the history and ethnography of the Chukchee]. Leningrad: Nauka.

Ventsel, A.

2006 Hunter-herder continuum in Anabarski district, NW Sakha, Siberia, Russian Federation. In *People and Reindeer on the Move*, special volume of Nomadic Peoples (NS) 10(2), 68–86.

Yoshida, A.（吉田　睦）

2003 トナカイ牧畜民の食の文化・社会誌：西シベリア・ツンドラ・ネネツの生業と食の比較文化 [Food culture of reindeer herders: Comparative study of subsistence and food culture of the Tundra Nenets in West Siberia]. Tokyo: Sairyu-sha.

Ziker, J. P.

2006 The social movement of meat in Taimyr, Northern Russia. In *People and Reindeer on the Move*, special volume of Nomadic Peoples (NS) 10(2), 105–122.

Zuev, V. F. (Зуев, В. Ф.)

1947 *Материалы по этнографии Сибири XVIII в.*. Труды Института Этнографии том 5. [Materials on the ethnography of Siberia in the eighteenth century. Bulletin of the Institute of Ethnography vol. 5]. Moscow and Leningrad: Academy of Sciences of USSR.

6

More than meat on the hoof? Social significance of reindeer among Finnish Saami in a rationalized pastoralist economy

Nuccio Mazzullo

Leibniz-Institut für Länderkunde, Germany & Arctic Centre, University of Lapland, Finland

ABSTRACT

Through an ethnographic account of movement, herding, and social changes among the Saami people of Finnish Lapland, this article illustrates the importance of reindeer pastoralism as a subsistence that goes beyond purely economic analyses, calling for a more holistic approach. Despite a diminished economic importance, reindeer herding nowadays still plays a very important role in the social and cultural support of Saami society. The transition from intensive to extensive herding (Ingold, 1980) and the creation of the herding cooperatives have had a significant impact on both the Saami perception of the landscape and on their patterns of movement (Mazzullo & Ingold, 2008). In social terms such change can be seen in the creation, within the herding cooperative, of a somewhat artificial socio-economic structure (the herding cooperative) that initially did not follow the traditional model of the Saami herding unit (*siida*) and was later incorporated into an enlarged new *siida*. Traditionally, Saami subsistence has never been based on one particular activity but has shifted according to the season from hunting to fishing to gathering to herding. Hence, the Saami approach to the use of natural resources has reflected a holistic attitude of incorporating both in economic and cultural ways the various aspects of their relationships with the environment. This is an explanation for the resilience of those Saami who stay in reindeer herding. As a reindeer herder once explained, reindeer herding is a way of living, not a way to *make* a living, thus and in this encapsulating the very nature of the Saami worldview. Furthermore, an understanding of this concept reveals the ways in which the symbolic aspects of reindeer herding still guide people's perception of their actions in the landscape. In turn, such a realization may well help to promote the implementation of policies that would take into account these elements.

Keywords: Saami, herding, movement, domestication, social change

INTRODUCTION

The significance of reindeer pastoralism among the Saami people of Finnish Lapland can perhaps best be understood as a subsistence that reaches beyond purely economic analyses for a more holistic approach. Reindeer herding is deeply embedded in all the different social and cultural aspects of Saami life, and despite its diminished economic importance, reindeer pastoralism is fundamental for the support of Saami culture.

The Saami people are the only indigenous group in Europe. They live in the northernmost region of Europe, in a territory that stretches across the four different nation states of Norway, Sweden, Finland, and the Kola Peninsula in Russia (Figure 1). This region, called *Sápmi*[1], by Saami people, is also called in Norwegian Finnmark and in Finnish Lappi. According to the *Sámediggi* (Finnish Saami Parliament) the Saami number over 75,000 people, most of them—about 45,000—living in Norway; about 20,000 in Sweden; just about 9,000, Finland; and about 2,000 in Russia[2]. The Saami language is comprised of nine main languages, overlapping with correspondent Saami groups, of which the Northern Saami is the most frequently spoken. My research[3] focused on the Saami community

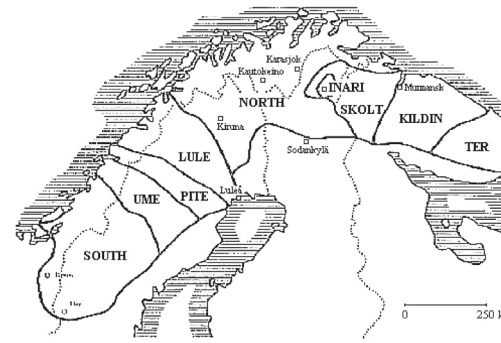
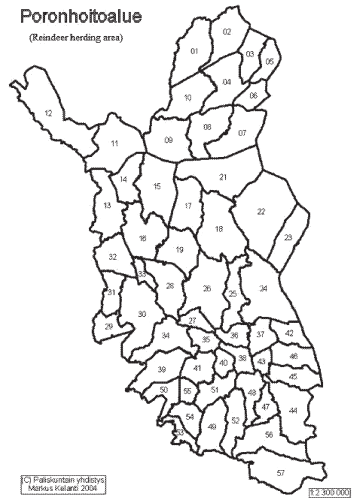


Fig. 1. Geographic and linguistic distribution of the Saami people (Sámi Instituhtta 1990: 155). [Courtesy of Davvi Girjis, Karasjok, Norway]



1	Paistunturi	21	Lappi	40	Mäntyjärvi
2	Kaldoaivi	22	Kemin-Sompio	41	Kuukas
3	Näätämö	23	Pohjois-Salla	42	Alakitka
4	Muddusjärvi	24	Salla	43	Akanlahti
5	Vätsäri	25	Hirvasniemi	44	Hossa-Irni
6	Paatsjoki	26	Pyhä-Kallio	45	Kallioluoma
7	Ivalo	27	Vanttaus	46	Oivanki
8	Hammastunturi	28	Poikajärvi	47	Jokijärvi
9	Sallivaara	29	Lohijärvi	48	Taivalkoski
10	Muotkatunturi	30	Palojärvi	49	Pudasjärvi
11	Näkkälä	31	Orajärvi	50	Oijärvi
12	Käsivarsi	32	Kolari	51	Pudasjärven Livo
13	Muonio	33	Jääskö	52	Pintamo
14	Kyrö	34	Narkaus	53	Kiiminki
15	Kuivasalmi	35	Niemelä	54	Kollaja
16	Alakylä	36	Timisjärvi	55	Ikonen
17	Sattasniemi	37	Tolva	56	Näljänkä
18	Oraniemi	38	Posion Livo	57	Halla
19	Syväjärvi	39	Isosydänmaa		

Fig. 2. Map of the reindeer area in Finland and list of the names of the herding cooperatives (Kelanti M., 2004 Paliskuntain yhdistys)

[1] In this article, except the term Sámi, all other terms in Sámi language are *italicized*, and the Finnish ones are underlined.

[2] http: //www.samediggi.fi/index.php?option=com_content&task=blogcategory&id=105&Itemid=104

[3] My research fieldwork was conducted mainly in the Municipality of Inari between 1995-97 and formed the basis for my doctoral dissertation. Most of this article is based on Chapter 2 of the unpublished doctoral dissertation (Mazzullo 2005: 82-151).

in the village of Inari, particularly on those residents who belong to the reindeer herding cooperative of Sallivaara, located about 60 kilometers south of the village (Figure 2). It shows, amongst other things, that the Saami subsistence economy is still a mixed economy, in keeping with traditional principles. The Saami economy has always been based on an ensemble of livelihoods practiced at different times throughout the year: in earlier times, with hunting, gathering, and fishing; then later, with herding; and nowadays, with seasonal work like tourism. Furthermore, the relationship between Saami people and the landscape is very intimate, validating the principle that the landscape is important in fashioning people's sense of identity and is a repository of their traditions. For the Saami, the natural world is not understood to be standing apart from the domain of human social life, but rather it is seen as a continuation of it.

HISTORICAL OUTLINE OF THE SAAMI RELATIONSHIP WITH REINDEER

During the fieldwork that I carried out in Lapland (Mazzullo 2005), Saami informants have described reindeer herding as a way of life. However, such a statement should be associated not only with the herding mode of subsistence as it was practiced and documented in the past three centuries but also with the way it is practiced now. The introduction of new technologies has changed migration patterns, the permanence of the herders in the forest, and containment of the herd's growth (Beach, 1981; Ingold, 1976, 1980; Peltto, 1973). Nonetheless, continuity in their traditional way of life is most strongly supported by the existence of a long-term relationship between the Saami people and the reindeer, a relationship which continues to have a fundamental cultural role in fashioning their identity. Saami subsistence was originally based very largely on hunting, fishing and gathering, but over the last three centuries, at different times for different groups, a greater emphasis has been placed on herding. What were traditionally subsistence activities (e.g., reindeer herding, hunting, fishing, and so on) are now carried out more as modern commercial enterprises, usually in combination with extensive involvement in seasonal work, commerce and other tertiary sector activities such as local government and administrative offices, education, social services and tourism.

From an aboriginal group of hunters who lived in the Scandinavian peninsula several thousand years before Christ, described by Barth and Vorren as a "tribe of hunting people living off game and fish" (Barth 1982: 21, Vorren, 1982: 55), the Saami started to domesticate reindeer much later. The first documents to confirm the taming of draught animals date back only to the ninth century A.D.. It is from the account given by Ottar, a Norwegian trader to King Alfred of England, that we know the Saami people used draught reindeer and tamed some of them for use as decoys for hunting wild reindeer (Magnus, 1555; Vorren & Manker, 1962: 12; Vorren, 1982: 55). The existence of this hunting technique is also supported by numerous archaeological excavations of pitfall systems that were located in strategic places which intercepted seasonal migration patterns (Fellman, 1906: 58; Vorren & Manker, 1962; Näkkäläjärvi O., 1965; Ingold 1976; Vorren, 1982; and others). Small-scale intensive herding became one of the features of Saami culture only from the sixteenth century

onwards. Lehtola argues that extensive herding developed in Finnish Lapland only at the beginning of the seventeenth century (Lehtola, 1997: 26).

There are many different views regarding the reasons that reindeer herding developed from the previous activity of hunting. Among the factors that influenced this process were the arrival of farmers, the need to rely on a more predictable source of income for the payment of taxes and for barter, political changes, and the establishment of new state borders, as well as the decreasing numbers of wild reindeer and wild game (Vorren, 1982: 55). Lehtola (1997) sees the increase in the number of reindeer and the consequent passage from intensive to extensive herding as a major cause of social and cultural changes in Saami society. Because the greater number of reindeer needed more pasture, the village had to split, and households started to live and move with the herd. Thus migration routes became longer, alternating between pasture in the summer by the coast, where there were fewer insects, to inland areas near the forest in winter, where there were shelter and food (Lehtola, 1997: 26).

By the first half of the twentieth century, the closing of the national borders reduced the semi-nomadic life to a shift between relatively close summer and winter pastures. Particularly, in the second half of the century, as Ingold points out in reference to the Skolt Saami case, the pastoral mode of existence was transformed into predatory pastoralism (Ingold, 1976: 18, 45). This transformation implied that the herdsman had become, in effect, the hunter of his own reindeer, or of their unmarked offspring[4]. That is, whenever a herder found his reindeer at the separation corral, he would often prefer to slaughter them than to let them return to the forest, where he had little hope of ever seeing them again. Ingold argues that such activity is part of the overall transformation of the herding strategy. The impoverishment of the pasture grounds, the introduction of the market economy, and the mechanization of herding work, made it impossible to run small-sized reindeer herds to meet household needs. Owners of large herds had a better probability of finding animals in the separation corrals. All these variables, together with the subsequent rise of a new category of owners known as the "big men", akin to Western entrepreneurs, have generated a new approach to herding itself (Ingold, 1976: 45–73).

In general, the creation in 1898 in Finland of herding cooperatives, with geographically defined borders that were confirmed by the first Reindeer Herding Bill in 1932, obliged the Finnish Lapland herders to graze their herds only within the borders of any given herding cooperative's territory. Subsequently, the construction of fencing ensued, as in the example shown in Figure 3. Since the Saami herders no longer needed to live with the herds, an extensive fencing program was undertaken from 1950 onwards to prevent unattended reindeer from straying onto the territories of other herding cooperatives, particularly across national borders where they might have been be lost forever. As can be seen in Figure 3, after the almost complete

[4] Unmarked reindeer (in Sámi: *goddi*, sing.; *goddit*, pl.) are those which become separated as calves from their mothers before they are earmarked. When it is impossible to establish ownership, reindeer belong to the herding association on whose territory they happen to be found or hunted. In the past goddi meant "wild reindeer." According to Itkonen, "probably the last wild reindeer hunted in Inari was in 1870" (Itkonen 1984: 24).

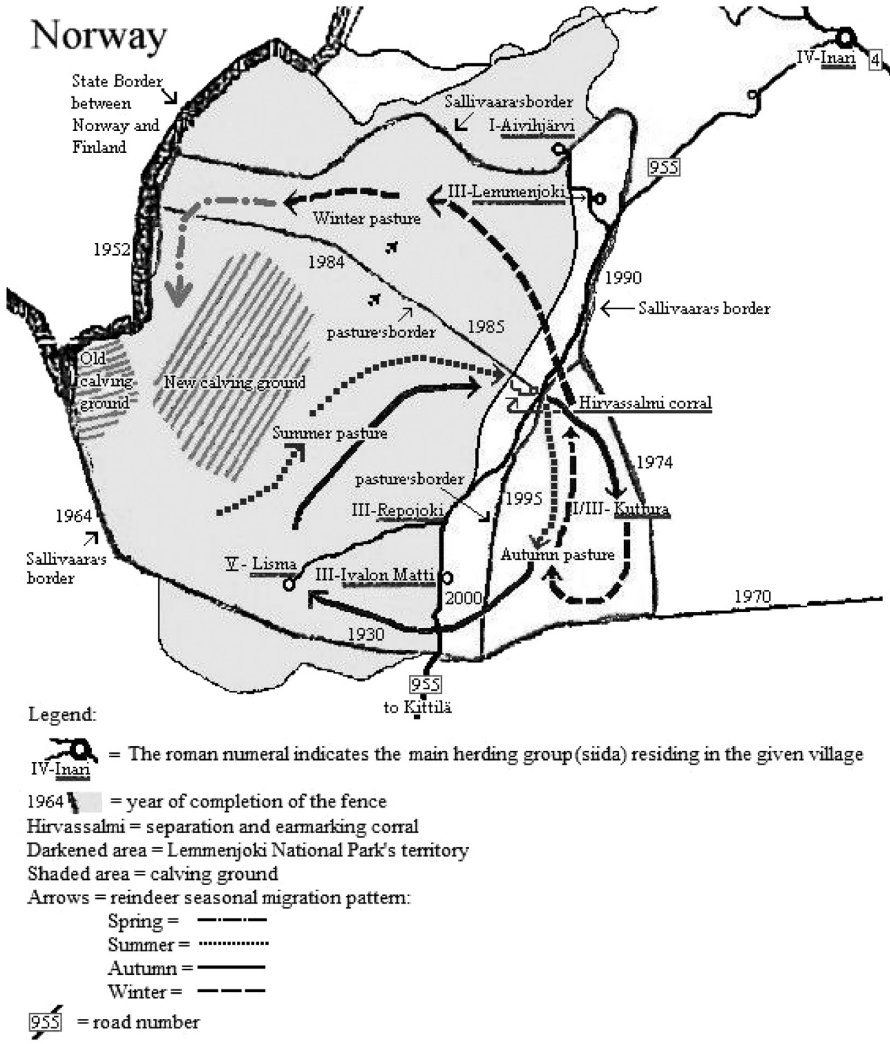


Fig. 3. Sallivaara cooperative's current herding cycle. Each arrow refers to the seasonal migration of the herd to pastures within the cooperative's borders. (Map reproduced from Mazzullo, 2005: 97)

implementation of the fencing program in the northern cooperatives territories, any further transformation of reindeer herding would, in the view of most of my informants in 2005, lead to the model of cattle breeding. Indeed, close examination of the relationship between the herder and the reindeer is essential to the traditional definition of the Saami herding tradition.

In contrast to breeding, which is based primarily on the ability to exercise human control over the processes of selection and reproduction of the herd, as, for example, among cattle breeders, the Saami approach to reindeer herding tended towards the idea of intervening as little as possible and maintaining a symbiotic relation with the herd by defending it from natural predators and famine. Even with herding in its current stage, referred to in the anthropological literature as "extensive," physical

contacts between the herder and the reindeer are limited to twice a year; for the remaining part of the year contact is merely visual, through binoculars. In general terms, this approach to reindeer herding is what distinguishes it from cattle breeding. Animals are not kept in stables, but roam freely throughout their lives and, until recently, large-scale artificial winter feeding was not widely practiced[5].

WILD VERSUS DOMESTIC: THE SAAMI APPROACH TO HERDING

The symbiotic aspect of Saami reindeer herding is in tune with the notion of symbiotic domestication, as suggested by Beach and Stammler. Their argument is that the process of domestication is not a one-way process but rather the result of a circular and reciprocal process of communication between the human and the animal that implies learning at a deeper level by both reindeer and herders (2006: 10).

Among the Saami, a distinction between the wild and the domestic may once have existed, but only in practical terms, bearing on the division of tasks between men and women, between forest and village, and between more or less unfamiliar environments. These divisions were always flexible and susceptible to change. In the Saami language, the distinction between wild and domestic is portrayed in various ways: terms that define the nature of an animal as wild or unruly, such as *vilddas*; and for being wild—frisky, lively, spirited—such as *vilddáskit*. To become wild is *meahcáiduvvan*, meaning "to become huntable." This term also applies to trained reindeer that may have become feral again (Takakura, in this volume; Beach & Stammler, 2006: 8). The opposite is represented by the terms *lodji* or *lojes* that translate as domestic, docile, calm, and humble. To domesticate or to calm is *lodjudit*, and to become domesticated, calm, is *lodjut*.

According to the Saami dictionary (Sammallahti, 1993), the terms used to describe the condition of such animals are, for a wild animal, *luondduealʼli*, which can be translated as "nature[natural] animal," and for a domestic animal, *šibit*. However, whenever I asked Saami friends about the meaning of *šibit*, they would explain that it meant "cattle" rather than "domestic animal." Hence, although *šibit* is translated in the Saami-Finnish dictionary as a general term for a domestic animal, it is, in reality, understood by Saami people as referring to the only animal they see as domestic: the cow. A similar distinction applies to the terms *eallu* and *oamit*, pl., (*oamastit*, to possess, to own). Although these are translated into Finnish as karja, "cattle," in fact, the term *eallu* is used to refer only to reindeer herds. *Oamit* refers to domestic animals in general. The latter term is applied to animals that are entirely dependent on human help and in that sense in the possession of their caretakers. During my fieldwork it became clear to me, from conversations and interviews, that Saami reindeer herders take pride in saying that their reindeer are wild, i.e., independent. To have a tame herd is, for them, the same as having *šibit* or *oamit*, a cattle herd, which could not survive in the forest. Thus, in this sense and in contrast to the Western approach, Saami prize wild animals more than domestic ones precisely for their characteristic

[5] In most Saami herding cooperatives fodder and feed are brought to the hills by snowmobile at the end of harsh winters, in spring time, and only when they are sure that most of animals are too weak to make it through the winter. In contrast among Finnish reindeer herders this practice is more popular.

independence. Perhaps also for this reason, the notion of domesticity is not extended to pets. Pets, particularly dogs, which are typically not kept in captivity, are regarded as autonomous members of the family. Although dogs are employed these days to a lesser extent in herding than in the past, they have still retained an important place in Saami society.

In Saami language, in addition to specific terms for identifying a reindeer according to gender and age, there are also terms to distinguish reindeer bucks according to different degrees of domestication. For example a reindeer buck that has been castrated the previous year but not harnessed is called *spáillit*. If it is kept alive to grow fatter for slaughter, it is called *nulppu*. A draught reindeer trained to pull a Saami sledge for transporting people is called *vuoján*, whereas an animal trained to pull a sledge for transporting goods is called *geasehanheargi*. However, given the pragmatic nature of such distinctions, they are not acknowledged by the Saami in the reports of the herding cooperative for the Finnish officials, and all castrated bucks are included with the castrated and domesticated bucks under the general term, *heargi*. With the introduction of the snowmobile in the sixties, reindeer are not used as they once were for transporting people and goods; on the other hand, reindeer have been rediscovered as valuable resource in the tourist industry, particularly by those companies that organize reindeer-safaris, hence making those traditional distinctions still valid.

The linguistic aspects of the reindeer terminology illustrate the accuracy of the Saami language in differentiating between certain terms; in other cases, such differentiation is blurred, as its translation applies across both the human and the animal domains as a remnant of the hunting and gathering past. Most importantly, in the Saami case even where distinctions are apparent, they are not organized hierarchically, but rather as descriptions of behavioral characteristics, for example, of the subjects.

Challenging the distinction commonly made between "wild" plants and animals that "just grow" and "domesticated" plants that are "produced" through human intervention in nature, Ingold argues that the work people do, for example in farming or herding, "does not literally make plants and animals, but rather establishes the environmental conditions for their growth and development" (1995: 20). Ingold's position is in tune with that of the Saami herder and writer Johan Turi (1910), who quotes a Saami yoik, *juoiggus*, sung by a herder to "mother earth," *eatnan*, on his return to the previous year's pasture (Helander, 2000: 175). As the herder traveled to this pasture he would sing the yoik to thank *eatnan* for having nourished the herd in the previous season. The introductory lines of the yoik are as follows:

> "Welcome my herd and take care of it
> just like you have done before
> be now, little mother, my friend again
> little mother, feed now my reindeers well ..." (Turi, 1979: 99).

In the historical context described in the yoik, the herder knew that it was "mother earth" who nourishes the reindeer so that they can grow, while he assists by attend-

ing to the herd, thus ensuring the best possible conditions under which the herd can draw sustenance from the earth, unmolested by predators, insects, and other hazards. Similarly, among the Kabile peasants of Algeria, described by Bourdieu, the earth is the "*alma mater*, the nourishing earth, rather than *materies*" (Bourdieu 1963: 57). The earth brings forth; the herdsman assists. Likewise, the peasant farmers of Boyaca, described by Stephen Gudeman and Alberto Riviera (1990: 25), say that the earth gives birth to crops, while the farmer acts as a midwife.

The Saami attitude towards reindeer ownership reflects the notion that herders are only assisting, that they do not fully control the herd. Ownership becomes apparent and meaningful only when reindeer have been driven from the forest to the corral. Whilst the reindeer are in the corral, every herder must be able to distinguish his own animals from the rest of the herd. As soon as the reindeer are released back to the forest, ownership ceases to be relevant, and the reindeer are once again perceived as, and become, wild. In the same way, the notion of breeding is limited to a specific situational context. Unlike farmers, who have full control over which animals are allowed to mate, the only moment when Saami herders are able to handle the reindeer bucks, after the mating season, is during the winter separation. It is at this time, therefore, that they can have some control over the reproductive process of the herd. By means of castration and slaughter, the herders, each one acting independently of the others, leave only the bucks that have the best chances to survive until the following mating season. From these bucks the whole herd stands to benefit. In this context the Saami definition of the beauty of the herd, *čappá eallu*, is represented by its heterogeneity instead of a rationalized homogeneity that would otherwise increase its vulnerability. The herd is beautiful because its diversity allows it to survive under changing or unfavorable conditions (Tyler *et al*., 2007: 197). Hence the breeding skills of each herder are, in the end, perceived as part of the bigger picture, reflected in the beauty of the cooperative's herd.

REINDEER HERDING AS A SOURCE OF SAAMINESS

Although Saami life and livelihood still revolve around the reindeer, in fact, only a small part of the Saami population practice reindeer herding as a primary occupation. In Finnish Lapland, the Saami represent only about 20 percent of approximately 5,000 reindeer owners; the rest are Finnish owners who practice agriculture and forestry as a primary occupation and reindeer herding as a secondary source of income.

Saami subsistence has been traditionally based on a mixture of herding, hunting, berry collecting, and fishing. It is still common even for people who may have occupations that do not relate to reindeer herding or fishing to practice some form of gathering, to fish from time to time, and to have a few reindeer. However, the significant difference between Finnish and Saami reindeer herding is, as Saami informants have always said, that for the Saami, reindeer herding is essentially a way of life in itself. Most importantly, it is inextricably linked to the rich vocabulary that refers to all aspects of the herding. For instance, in the Saami language reindeer have many different names. These depend on their age, gender, the color of their hide, the type of antlers—shape, size and inclination—and also their character. The resulting name, a combination of all these qualities, can specify a reindeer almost uniquely. Table 1

shows the names used to indicate age and gender.

This richness of the terminology of herding, as well as that related to geographical features and climate conditions, for example, particularly applies to herding as it was practiced until the early part of the twentieth century. Nonetheless, the Saami still talk about present-day reindeer herding in the same terms. The existence in their language of such a rich and precise terminology that defines the reindeer in all possible and different ways accentuates the existence of the long-term relationship between the Saami and the reindeer. On the contrary, the Finnish herders' main connection is to the farm, and, as noted by Ingold, the forest and livestock belong to it and are resources to be cultivated and harvested. For example, Ingold says (1988), although in Finland both Saami and Finns practice reindeer herding, the fundamental styles are based on two different worldviews: one, the Saami, is based on the reindeer; and the other, the Finns, on the forest.

> A fundamental difference between Saami and Finnish husbandry is that whereas for the Sami the herds traditionally constitute a repository of wealth and value, for the Finns reindeer are regarded as things which, like crops, are to be grown and harvested, or in other words, to be farmed. The repository of wealth for the Finnish farmer is his reserve of standing timber, held on a private, bounded plot, or as a fixed share in common forest (Ingold, 1988: 130).

Ingold further reinforces this statement in another article in which he refers to the difference between Finnish and Saami herders:

> Most revealingly was that when asked to give the size of a separation, reindeermen from Salla usually reported the number of carcasses it yielded, whereas Saami informant always presented an estimate of living animals collected to the fence (Ingold, 1997: 56-7).

As this account illustrates, reindeer herding, despite being integrated both for the Saami and for the Finns in the same market logic, the perception of reindeer is fun-

Table 1. Saami names for reindeer according to age and gender

Age	Gender		
	Male	Neutral	Female
up to 6 months		*Miessi*	
From 6 months until about 15 months		*Čearbmat*	
From 1¼ to 2¼ years	*Varit*		*Vuonjal*
From 2¼ to 3¼ years	*Vuobirs*		*Ál'do*
From 3¼ to 4¼ years	*Goddudas*		*Njiŋŋelas* (age neutral)
From 4¼ to 5¼ years	*Goasuhas*		
From 5¼ to 6¼ years	*Mákkan*		
From 6¼ years and older	*Nammaláppan* (name-lost)		

damentally different. The Saami are still embedded in a culture that in the past represented the reindeer on the membranes of their drums as a sacrificial animal or as a wild reindeer (*goddi*), as game for hunting, or as a domesticated animal (*sarvvis*). There is not a single shaman drum on which the reindeer would not be represented. Of course, shamanism has lost its original importance; however, much of its meaning remains close to the Saami heart and still exercises a strong influence.

THE NOTION OF *SIIDA* AS THE EPITOME OF SAAMI IDENTITY

The traditional herding cycle among the Saami was based on three main features: the herd (*eallu)*, the herding group (*siida*), and the seasonal migration *(johtin)*. The cycle revolved around the community of herders, the reindeer and the shift between the summer and winter pastures. The herd was the basic unit on which the herder could rely. The term in Saami is *eallu*, which literally means life, herd, wealth, possession. It is related to other similar terms that indicate its importance in Saami life: *ealli*, meaning animal, or alive; *eallin*, life; and *eallit*, to live. Although the number of reindeer that form a herd, *eallu*, can vary, there should be at least a couple of hundred reindeer per family in order to provide a living.

The second concept is the *siida*. The *siida* is not the village, which in Saami is *gilli* and refers only to stationary settlements with fixed dwellings. The *siida* is, instead, the herd, *eallu*, together with those who tend it. It is an indissoluble union between the herd and a band of herders. According to Emilie D. Hatt, a *siida* used to be "The name given to a collection of Lapp tents, together with their herds. This name is also given to a single tent with its herd, or herds" (Turi, 1931: 239).

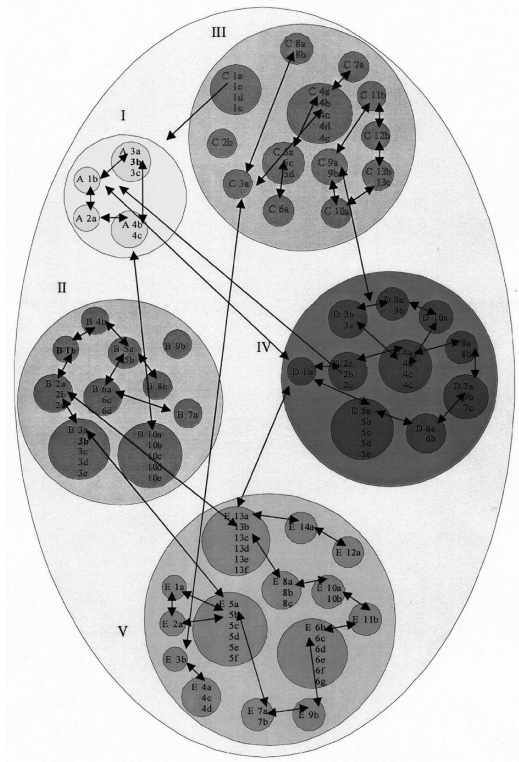
This definition does not apply today because Saami have settled in villages, nor can we follow the definition given by Itkonen, that a *siida* has to include at least one thousand reindeer (Itkonen, 1984: 114). Nonetheless, the *siida* evokes notions of solidarity and cooperation that are still fundamental to reindeer herding. Today the *siida* is a heterogeneous group of siblings, affines, and some outsiders not directly connected to the main kin groups. Hence the idea that the "basis for the sii'dâ is a network of kinship ties" (Whitaker, 1955: 57) still generally holds true, as well as the fact that "a certain dominant group usually forms the nucleus in the composition of a *siida*" (Manker, 1953: 15; in Whitaker, 1955: 57). But this is not a general rule. The concept of *siida*[6] as a fundamental marker of Saami identity comes from its geo-socio-political property of being fully inclusive. When Saami use the term *siida,* they still refer to the pasture, the place where the herders camp, the *eallu*, and the social relationships shared among its members.

In the herding cooperative of Sallivaara, where I did my fieldwork, all the families are in one way or another related through consanguineal or affinal ties. Herding activities are conducted in teams, or "bands" (Ingold, 1980), and there is a great deal of solidarity, particularly among those who are closely related. In the region where the Sallivaara cooperative was established there was originally only one local *siida*. At the beginning of the twentieth century, when other *siida* migrated to the same region, each *siida* carved out pastures and looked after its own herd because the territory had not yet been fenced. Intermarriage did eventually create kinship bonds

[6] In Finnish, tokkakunta; literally translated tokka, means "herd" and kunta means "community."

between different *siidat*, but reindeer herds were still cared for autonomously by each *siida*.

Kinship bonds extended the level of solidarity beyond the *siida* itself, so that whenever reindeer went astray, they would be returned to their legitimate owners. It was only with the imposition by the Finnish government of clear and fixed geographical and administrative boundaries in 1932 that a different concept of solidarity and cooperation gradually developed. As Lehtola (1997) argues, although reindeer herding laws had been issued at the same time (in 1898) in Norway, Sweden and Finland, in Finland they had a greater impact on the cultural and socio-economic landscape. Although reindeer herding has always been an occupation open only to the Saami in Norway and Sweden, in Finland it has also been practiced as a secondary activity by Finnish settlers for almost two centuries (Lehtola V-P., 1997: 42). Thus when the Reindeer Herding Law was enacted in Finland, in 1932, the cooperatives were shaped to match existing Finnish organizations. As Lehtola notes, the term in Finnish for the head of the cooperative, poroisäntä, is based on the Finnish talonisäntä, a peasant proprietor. This concept has no counterpart in the traditional social organization of Saami reindeer herding. Lehtola's point is that the Finns regarded the headman as a representative, but the Saami instead regarded each herder as representative as any other. Giving importance to one herder over the others clearly goes against Saami ideals of autonomy. Such a rigid economic structure greatly influenced herding as a whole. In particular the establishment of cooperatives with boundaries, called in Finnish paliskunta, led to the aggregation of different *siidat* that had otherwise followed different herding cycles.



Legend:
Large circle = Cooperative (paliskunta) ;
Medium circle = band, *siida* (tokkakunta);
Small circle = households;
Low-case letters:
a = male household head; b = female household head;
c, d, ...= other members/residents of the household;
Arrows indicate the existence of kinship bonds among the household members.
(Roman numerals correspond to herding band affiliation)

Fig. 4. Diagram of current kinship and marriage patterns in the Sallivaara herding cooperative between different *siidat* that were once separated (Mazzullo, 2005: 136)

Traditional patterns of kinship were also affected. Marriages, once a matter of

absolutely free choice among people of neighboring *siidat*, were refocused within the boundaries of the cooperative. Figure 4 illustrates kinship patterns. The five different circles indicate the *siida* present at the herding cooperative before the imposition of the cooperative system (paliskunta), and the outer circle represents the cooperative's outer border after the constitution of the paliskunta . The marriage pattern of the cooperative is thus characterized by a shift from an initial exogamic pattern indicating movement and flexibility to one that becomes more focused within the borders of the cooperative, leading to a kind of endogamy, a pattern that involved members of the same cooperative but from different *siida*. Kinship, affinity and locality overlap. In the past, exogamous marriages occurred, but they were not mechanically determined by the relationship itself. When such exogamous marriages did take place, they either created new alliances or reinforced existing ones. After the Finnish government issued the bill for the institution of the cooperatives of reindeer herders, the *siidat* (pl) present in the designated area were incorporated into a single paliskunta and thus, through intermarriage, an extended *siida* was created.

In short, the *siida* developed a new form, while maintaining traditional values. In fact, the notion of *siida*, based on the principle of autonomy, is still in flux, encompassing relationships among a given group of people, the reindeer, and the landscape. In the 1950s Pehrson was led to say about the Swedish Saami that "flexibility, variability and the absence of extensive corporate groups are undoubtedly the most striking characteristics of Könkämä Lappish social structure" (Pehrson, 1957: 107). My informants constantly emphasized that herding is based on internal cooperation and participation. These are traits that also characterize the other communities of reindeer herders of the Arctic (Stammler, 2005; Anderson, 2000; Kerttula, 2000). According to my informants, successful cooperation entails careful attention to one's own social and personal relationships with the members of the group, a matter of great importance to them. Within the Saami cultural universe, reindeer herding has played, *de facto,* the fundamental role of social catalyst in these processes of disruption and reappropriation.

RELATIONSHIP WITH THE LANDSCAPE AND MOVEMENT

The Saami relationship with the landscape is, indeed, very intimate, despite the numerous technological changes that have affected the ways in which people talk about, engage with, and move in it. Saami cosmology shares many similarities with that of other circumpolar indigenous peoples. Anderson, who has carried out extensive research in Siberia, describes this type of mutual relationship by introducing the concept of "sentient ecology." This concept conveys the idea that "the Evenki hunters act and move on the tundra in such a way that they are conscious that the animals and the tundra itself are reacting to them" (Anderson, 2000: 116, footnote 1). According to Kerttula, among the Chukchi the spiritual connection with the tundra was expressed in their relationship with the reindeer and in the belief that they were the reincarnation of the reindeer. The Yup'ik, similarly, drew spiritual protection from sea mammals (Kerttula, 2000: 123–137).

The Saami shaman was surrounded by animal "helpers," from whom he[7] received

[7] The shamans were mostly, but not exclusively, men.

power and wisdom. During the propitiatory or healing rituals, particularly when he had to travel to the realm of the dead (*Jábmeáibmo)* in order to reclaim the soul of a victim, the shaman made use of shape-shifting powers to transform himself into a reindeer, a bird, or a fish (Pettersson, 1957: 166). The *sieidi*, constituted by mountains, lakes, rock, or trees, was another aspect of the sacrality with which the landscape was imbued. The *sieidit* (pl.) were, and to a certain extent still are, important features of Saami cosmology, but their relevance was also extended so that they were geographical and social reference points in the landscape, not only places of worship. Each *sieidi*, whether it was a private, family or village one, had a delimited area of influence, and all these areas were interconnected. Thus the *sieidi* was the nexus between geographical, social, religious, and political domains of Saami life. Because people were not moving in a landscape that was separated from their "self," they could feel perfectly comfortable in any place. This intimate relation must be understood not only in spatial, social, religious, and political terms, but, as mentioned, as the fully encompassing concept of the "self-in-the-world."

CHANGES IN MIGRATION PATTERNS

The historical development of reindeer herding may roughly be divided into seven main stages representing the different forms of Saami relationships with reindeer, as shown in Table 2. Although the table is somewhat arbitrary in the choice of historical landmarks in herding practices, nevertheless, it serves to outline the major stages in the historical development of herding and the corresponding social and economic changes among the Saami people.

Table 2 illustrates that from the original hunting mode of subsistence, on skis and using arrows as described by early sources, the Saami entered a phase in which they started to keep reindeer as decoys for hunting wild reindeer. In the third phase they had already started to use reindeer as draught animals and for milking. In the fourth phase, the pattern of migrating with herds was well established, and this custom continued, at least in Finland[8], until the beginning of the twentieth century. In Sweden, and particularly in Norway, migrations are still practiced today; in Finland, customary migrations came to a halt with the setting up of the reindeer herding

Table 2. Stages in the development of Saami reindeer herding

Stages in the Saami relationship with reindeer

	I	II	III	IV	V	VI	VII
Stage	Hunting	Hunting, Taming decoys	Hunting, Taming, small herds	Intensive herding, Hunting	Extensive herding	Extensive herding	Extensive herding
Method	Traps, Pits	Traps, Pits	Traps, Pits	Moving with herds	From wooden fencing to metal nets	Snowmobile, Motocross Vaccination	Mobile phones, Artificial feeding, Quad bikes, Airplanes, Helicopters
Period	Ante VII c.	VII c.	XVI c.	XVIII c.	early XX c.	mid XX c.	late XX c.

[8] Except in the interior forest of Kemi-Sompio and Petsamo

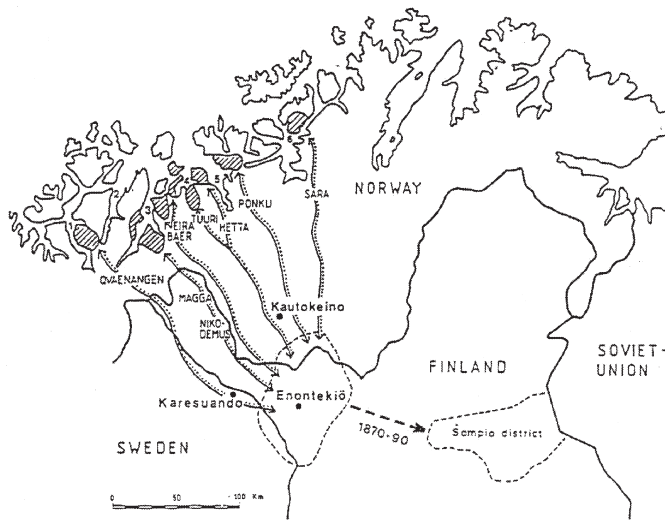


Fig. 5. Map of the migration patterns of ten Saami families before their final migration to the Sompio District, according to Samuli Aikio. Each arrow indicates the family name and its route between summer pastures by the sea and winter pastures inland (Map reproduced from Aikio, P. & M. Aikio 1989: 124).

cooperatives. This fifth stage is the phase in which fencing became necessary to separate the cooperatives' pasture grounds within the reindeer herding districts in the north of Finland. In the sixth stage the introduction of the snowmobile further accelerated physical movement within the fenced territories of the cooperatives. Finally, in the last stage, the introduction of airplanes and helicopters, used to search for and round up the herds, has further accelerated the speed with which herders can gain access to information about the herds and direct herd movements.

Most literature about Saami studies (Pelto, 1973, Pelto & Müller-Wille, 1987) most strongly emphasizes of all these changes the sixth and seventh stages as shown in Table 2. However, other previous changes, such as fencing, may have had an equally important role in the overall social and cultural change in Saami society. What is fundamental is that the construction of fences relieved herders of the need to supervise the herd day and night, allowing them to pay quick visits to the herd and return home the same day.

A comparison of the map of the migration routes of some Saami families, according to Aikio at the end of 19th century (Figure 5), and the new migration routes in the Sallivaara reindeer herding cooperative (Figure 3) points up the differences in migratory patterns. These maps reveal the drastic political changes which transformed the shift between inland pastures in winter to coastal pastures in summer into a circular pattern within a much smaller territory; for example, Sallivaara's territory is about 3,600 square kilometers. But this change brought another significant change from a migratory pattern that included people to one that is executed only by the reindeer, thus affecting the very meaning of *siida* as a comprehensive term that holds together the pasture, the herders, and their herd as a meaningful social unit.

The two maps clearly demonstrate how radical is the change that has occurred

and the severity of its impact on Saami culture. A correlation of a summary of the changes and Ingold's model on the transition from hunting to pastoralist to rancher societies allows for a connection between this transition and parallel social changes as illustrated in Table 3.

Table 3. Changes in the Saami relations to landscape, movement and livelihood

	Change in modes of subsistence		
	Hunting mode/hunters	*Pastoralist mode/ pastoralists*	*Ranching mode/ ranchers*
Type of movement	Moving separately	Moving together	Moving separately
Strategy	Intercepting herd's route	Negotiating routes	Intercepting herd's route
Technology needed	Making pits (fixed)	Making Saami tents, *lavvu*, (mobile)	Making fences (fixed)
Appropriation	Lack of direct control due to natural variables	Direct control, slaughtering according to needs	Lack of direct control due to natural or administrative variables

With respect to the Finnish case, the change of type of subsistence from hunting through pastoralism to ranching has brought about a change in the type of movement, and as can be seen from Table 3, those changes point to a return to the original hunting patterns. The rationale that guides the pattern is the same, but the type of movement reverts to the hunting stage. However, despite these changes, Saami people emphasize movement; it is through movement that they connect to the place where their reindeer are grazing:

> The bodily experience of the Saami person is not however confined within a somatic shell but rather extends as it grows and is laid down along the multiple paths of the person's movement through the forest. Thus to be, for a Saami, is to be not *in* but *along*. The path, not the place, is the primary condition of being, or rather of becoming. (Mazzullo & Ingold, 2008: 32).

Hence, despite the changes in their modes of subsistence and of movement, outlined in Table 3, the relationship of Saami herders to the reindeer continues through place. During my fieldwork among the herders of the cooperative of Sallivaara, whenever a herder returned from a patrol and was told the last location where the reindeer had been spotted, everyone else knew how long the reindeer would stay there, what they could eat, where would they go. That is, herders could follow their reindeer, i.e., herd them, albeit remotely.

CONCLUSION

In conclusion, it is important to stress that traditionally Saami subsistence has never been based on one particular activity but has comprised a mixture, in accord with the historical period and the season, of hunting, fishing, gathering, and herding. Hence the Saami approach the use of natural resources with a holistic attitude of

incorporating various elements of their relationship to the environment, both in economic and in cultural ways.

Political and border changes have also brought about changes in patterns of migration, particularly with respect to the Finnish case. As can be seen from the maps, earlier migration patterns between inland pastures and the coast ended with the introduction of the reindeer herding cooperatives when migratory patterns had to be reestablished within the newly set borders of the cooperative's territory. Similarly, the change in the *siida* social dynamics shows the adaptive capacity of the community to adjust to change, as seen in the Saami response to the creation of the Finnish state and the establishment of the herding cooperatives, which brought about a somewhat artificial *siida* that did not follow the traditional exogamous model and to which their response was the re-naturalization of the social patterns, through a temporary endogamy, within the borders of the newly created herding cooperatives.

However, flexibility, in the terms suggested by Stammler and Beach as "the realm (of usage) between that which is minimal for survival and that which is 'rational' (used here in the sense of complying with the aims of rationalization), in effect, the realm of sustainability" (Stammler & Beach 2006: 16), has become minimal due to the increased necessity to rationalize. In fact, at the reindeer separation (*rátkka*), Saami herders in earlier times separated reindeer on the basis of "which animal has the best chance of survival over the winter, judged by condition of its teeth, etc." Nowadays, they are compelled to adopt the official rationale established for the herding cooperative (paliskunta, Fin.), determined by the number of reindeer over the carrying capacity of its pastures; the increase of one of the variables has immediate repercussions on the others. As a Saami herder once told me, in the old days, if there were too many reindeer, then the reindeermen, no matter how skilful, would not be able to keep the herd (*eallu*) together. Some reindeer would have gone back to nature, meaning they would have gone astray, or joined wild reindeer herds; others would have become weakened and fall prey to wild animals. The imposition of stringent slaughter percentage indexes, that obliges herders to slaughter about 60 to 70 percent of the calves, has, in effect, limited and constrained the ability of the herders to make judgments about how to deal with the reindeer during the separations in the corral. Hence, instead of seeing a *miessi* or *čerbmat* (see Table 1) as a calf, they must see it as a head and make a decision accordingly.

Nowadays Saami people may have only a few reindeer, but they keep them because they regard them as important for their identity and for their language. They are regarded by older generations as a fundamental way to join modern Saami society and traditional values. More and more herders recognize the importance for Saami culture of keeping a connection to reindeer herding alive. For this reason, herders have increasingly defined their reindeer subsistence not only as an economic activity but also as a cultural one.

The way to understand the resilience of herders who persist in pursuing a subsistence that may be seen as marginal and at times low-profit is to understand that reindeer herding is a way of living, not a way to make a living. This concept is the distillation of the very nature of the Saami worldview. An apt conclusion to any discussion of the importance of reindeer for the Saami is to express feelings through

singing, as the Saami prefer to do. The following yoik, one among many that are dedicated to reindeer, captures most poignantly such a relationship:

I still yoik about Ultevis
Yoik about the high hills
And the grunting of the reindeer cows
And the ringing from the bells
Is heard together with my yoik
Let the reindeer cows on Ultevis grunt
Let the reindeer bulls clean their antlers
Against the willow bushes
On Ultevis
Those are the reindeer cows
Which have been left by my ancestors
We can still hear
The voices of the reindeer cows and the grunting of the calves
On the slopes of Ultevis
Where the birch still grow
(Kuoljok, 2005)

ACKNOWLEDGEMENTS

For the fieldwork I wish to acknowledge a three-year studentship (1995–1998) from the UK Economic and Social Research Council (ESRC). I also wish to express my gratitude to the Finnish Academy (Suomen Akademia) for the funding that allowed me to participate in the conference at the Tohoku University, Sendai, Japan; the Arctic Centre, Rovaniemi, Finland; and the Leibniz-Institut für Länderkunde, Leipzig, Germany, who allowed the time to attend.

BIBLIOGRAPHY

Aikio, P. and Akiko, M.
1989 A chapter in the history of the colonization of the Sámi lands: the forced migration of Norwegian reindeer Sámi to Finland in the 1800s. In *Conflict in the archaeology of living traditions*, ed. R. Layton, 116–130. London: Unwin Hyman.

Anderson, D. G.
2000 *Identity and Ecology in Arctic Siberia. The Number One Reindeer Brigade.* Oxford: Oxford University Press.

Barth, E.K.
1982 Ancient methods for trapping wild reindeer in South Norway. In *The Hunters. Their culture and their way of life*, Tromsø Museum Skrifter Vol. XVIII, ed.Vorren and Hultkranz, 21–46. Tromsø, Oslo, Bergen: Universitetsforlaget.

Beach, H.
1981 *Reindeer-herd management in transition: the case of Tuorpon Saameby in Northern Sweden*. Uppsala Studies in Cultural Anthropology 3. Stockholm: Almqvist & Wiksell.

Beach, H. and Stammler, F.
2006 Human-animal relations in pastoralism. In *Nomadic Peoples*, ed. F. Stammler and H. Beach, vol.10: 2, 6–30. Oxford: Berghahan Journals Ltd.

Bourdieu, P.
1963 The attitude of the Algerian peasant toward time. In *Mediterranean Countrymen: Essays in the Social Anthropology of the Mediterranean*, ed. J. Pitt-Rivers, 55–72. Paris: Mouton.
Fellman, J.
1906 *Anteckningar under min vistelse i Lappmarken*. Vols. I-IV [Notes from my stay in Lapland]. Helsinki: SKS.
Gudeman, S. and Rivera, A.
1990 *Conversations in Colombia: the domestic economy in life and text*. Cambridge: Cambridge University Press.
Helander, E.
2000 *Beaivvi Mánát; Saamelaisten juuret ja nykyaika* [Children of the sun; the Sámi roots and nowadays], ed. Irja Seurujärvi-Kari. Helsinki: SKS.
Ingold, T.
1976 *The Skolt Lapps Today*. Cambridge: Cambridge University Press.
1980 *Hunters, pastoralists and ranchers*. Cambridge: Cambridge University Press.
1988 Land, Labour and Livelihood in Salla, Northeastern Finland. In *The social implications of agrarian change in Northeastern Finland*, ed. T. Ingold, 121–139. Helsinki: Finnish Anthropological Society. Mäntä: Mäntän Kirjapaino Oy.
1995 Growing plants and raising animals: an anthropological perspective on domestication. In *The Origin and Spread of Agriculture and Pastoralism in Eurasia*, ed. R.Harris, 12–24. London: UCL Press.
1997 Work, Identity, and Environment: Finns and Saami in Lapland. In *Arctic Ecology and Identity*, ed. S.A. Mousalimas, 41–68. Budapest: Akadémiai Kiadó.
Itkonen, T.I.
1984 *Suomen Lappalaiset Vuoteen 1945*, Voll. I-II [The Finnish Saami until 1945], (Orig. Vers. 1948). Porvoo: WSOY.
Kelanti, M.
2004 map reproduced from Paliskuntain yhdistys. http://www.paliskunnat.fi (accessed Jan. 07, 2010).
Kerttula, A.M.
2000 *Antler on the Sea. The Yup'ik and the Chukchi of the Russian Far East*. Ithaca: Cornell University Press.
Kuoljok, M.
2005 *DAVVI JIENAT Boazoolbmuid luodit* [Northern Voices: Reindeer People Yoiks]/Disk 1, *Juoigama suopmanat* /Disk 2 (Compilation). DAT-CD38, DAT O.S. Kautokeino / Guovdageaidnu, Norway.
Lehtola, V-P.
1997 *Saamelaiset: Historia, Yhteiskunta,Taide* [Saami People: History, Society, Arts]. Jyväskylä: Gummerus.
2000 *Nickul: rauhan mies, rauhan kansa* [Nickul: a man of peace, a people of peace]. Kustannus-Puntsi, Jyväskylä: Gummerus.
Magnus, O.
1555 *Historia de gentibus Septentrionalibus* [Description of the Northern Peoples].
Rome. [(1998),Translated by P. Fisher and H. Higgens; ed. P. Foote, London: Hakluyt Society].
Manker, E.
1953 *The Nomadism of the Swedish Moutain Lapps. The Siidas and their migratory routes in 1945*, Nordiska museet: Ada Lapponica VII: 129 (Sweden No. 23, St. Sjofallet): 173 (No. 37. Hangajaure) 205 (No. 7 Lilla Arksjon). Stockholm: Hugo Geber.
Mazzullo, N.
2005 *Perception, tradition and environment among Sámi people in Northeastern Finland*, unpublished PhD Dissertation. Manchester, UK: University of Manchester.
Mazzullo, N. and Ingold, T.

2008 Being Along: Place, Time and Movement among the Sámi People. In *Mobility and Place: Enacting European Peripheries*, ed. J.O. Bærenholdt and B. Granås, 27–38. Aldershot: Ashgate Publishing Ltd.

Näkkäläjärvi, O.

1965 Preliminary Report on Investigation of Wild Reindeer Trapping Pits in Finland. In *Lapponica*: *Studia Etnographica Upsaliensia*, vol. XXI, ed. A. Furumark, 228–233.

Pehrson, R. N.

1957 *The Bilateral Network of Social Relations in Könkämä Lapp District; Slavic and East European Series,* Vol. 5. Bloomington: Indiana University Publications.

Pelto, P.

1962 *Individualism in Skolt Lapp Society*; Kansatieteellinen Arkisto 16. Helsinki: Suomen Muinasmistoyhdistys.

1973 *The snowmobile Revolution; technology and social change in the Arctic.* Menlo Park, Ca.: Cummings Pub. Co.

Pelto, P. and Müller-Will, L.

1987 Snowmobiles: Technological Revolution in the Arctic. In *Technology and Social Change*, eds. H. R. Bernard and P. J. Pelto, 208–41. Prospect Heights, Illinois: Waveland Press Inc.

Pettersson, O.

1957 *Jabmek and Jabmeaimo. A comparative study of the dead and the realm of the dead in lappish religion*, ed. C.W.K. Gleerup, Lund: Acta Universitatis Lundensis 1 afd, 52: 6.

Sammallahti, P.

1993 *Sámi-Suoma-Sámi Sátnegirji* [Dictionary Saami-Finnish-Saami]. Ohcejohka/Utsjoki: Girjegiisá Oy.

Schefferus, J.

1673 *Lapponia*; Frankfurt: Ex Officina Christiani Wolffii. Typis Joannis Andreae, [Itkonen T. (1963), *Lapponia*. Translation of the original publication in Latin by Itkonen], Hämeenlinna: Karisto.

Stammler, F.

2005 *Reindeer Nomads Meet the Market. Culture, Property and Globalisation at the 'End of the Land'*. Halle Studies in Anthropology of Eurasia Vol.6. Verlag, Berlin: LIT.

Turi, J.

1979 *Kertomus Saamelaisesta*. Porvoo: Werner Söderström Osakeyhtiö.

1931 *Turi's Book of Lapland*, ed. and translated into Danish Emilie D. Hatt; Traslated from Danish E. Gee Nash. Oxford: Alden Press.

Tyler, N.J.C. *et al*.

2007 *Saami reindeer pastoralism under climate change: Applying a generalized framework for vulnerability studies to a sub-arctic social–ecological system*, Global Environmental Change, Volume 17, Issue 2, 191–206. Guildford, Surrey: Butterworth-Heinemann.

Vorren, Ø.

1982 The wild reindeer hunt and offering sites. In *The Hunters. Their culture and their way of life*, Tromsø Museum Skrifter Vol. XVIII, ed.Vorren and Hultkranz, 55–68. Tromsø, Oslo, Bergen: Universitetsforlaget.

Vorren, Ø. and Hultkranz, Å. (ed.)

1982 *The Hunters. Their culture and their way of life*, Tromsø Museum Skrifter Vol. XVIII, Tromsø, Oslo, Bergen: Universitetsforlaget.

Vorren, Ø. and Manker, E.

1962 *Lapp life and customs: a survey* (Orig. ed. *Samekulturen*: 1957; Tromso: Universitetsforlaget). London: Oxford University Press.

Whitaker, I.

1955 *Social relation in a nomadic lappish community*. Samiske Samlinger: Oslo.Whitaker.

7

Between cattle and Islam: Shifting social and gendered significance of cattle among the Mbororo pastoralists in Cameroon

Tea Virtanen

Nordic Africa Institute, Sweden

ABSTRACT

This paper explores the symbolic importance of cattle as a supreme animal among the pastoral seminomadic Mbororo people of Cameroon. As for many other pastoral people, cattle for Mbororo undoubtedly form a dominant symbol in the Turnerian sense, in that they have the capacity to draw new meanings in altered situations. This paper explores such meanings in altered situations of three spheres of life:

1. the analysis of the changing role of cattle in establishing and sustaining kinship and marriage ties reveals how patrilineal ties are reproduced through the cattle inheritance system, where not only cattle owned by men but also those owned by women strengthen the patrilineage in an endogamic pastoral group.
2. the analysis of the chaning significance of animals with religious change reveals a certain change from cattle to sheep in the sacrifice practice, which is a direct influence of islamisation. However, cattle retain ritual symbolic significance even in rituals of the islamic calender as additional sacrifice alongside sheep, leading to a double ritual practice for the same occasion.
3. the analysis of the gendered significance of animals and their products shows how the pastoralists' continued cultural rapprochement with Muslims living in villages has influenced their views of allocation of cattle to women, who for example according to Islamic norms are not any more allowed to sell milk themselves.

During the the interconnected processes of Islamization and sedentarization, the Mbororo have found new "traditional" ways to employ cattle symbolically in order to substitute the old disappearing ones. The paper shows that the pressures for change, coming from outside the pastoral group, have resulted in "re-invention" or "multivocalization" of the meaning of cattle, and thus ultimately have provided a sense of cultural continuity, as the Mbororo seek to make their lives and their place meaningful in the changing world.

Keywords: animal symbolism, cattle, Cameroon, Islamisation, gender

INTRODUCTION

Since E. E. Evans-Pritchard (1940; 1951; 1956) and Godfrey Lienhardt (1961) wrote their classic studies of the nomadic pastoralists of East Africa, the socio-symbolic

meaning of cattle, i.e. the meaning that surpasses their purely utilitarian value, has recurrently fascinated anthropologists doing research on peoples herding cattle. As Jean Comaroff (1985, 72) notes, while referring to the above scholars, the role of cattle "as the symbolic extension of the human persona, linking man and spirit and providing metaphors of social relations" has been a perennial theme in African anthropological literature. Comaroff herself, in her historical study of the Tswana people in South Africa, underlined the role of cattle as double signifiers, which appear "simultaneously to personify individual identities, values, and ties, and act as generalized icons of the social structure qua structure," thus "speaking both to the particular and the general" (ibid.), and infusing the personifying quality of the cattle with their naturalizing function in the wider ideological frame.

James Ferguson (1985, 649) has also highlighted the ideological dimension while examining what he calls the 'bovine mystique' among the Basotho of Lesotho. This 'mystique' is a set of cultural rules that define and valorize livestock as a special category of property, and these rules make cattle the property most embedded in social relations and closely connected to local power relations that are centered on hierarchical relations between such categories of people as men/women, senior/junior, and patron/client. Finally, Sharon Hutchinson, retracing, and even going beyond, the Evans-Pritchardian human/cattle equation among the Nuer of East Africa, encapsulates the fundamental identity between cattle and the Nuer by stating that through cattle "individuals were able to transcend some of the profoundest of human frailties and thereby achieve a greater sense of mastery over their world: death became surmountable, infertility reversible, and illness something that could be actively defined and cured" (1992, 296). In this article[1] I will link my own research with the above anthropological discussions by exploring the divergent ways in which cattle play a central role in the mediation of social relations and gender among the seminomadic agropastoral Mbororo of Cameroon.

SETTING THE SCENE

The Mbororo belong to the Fulbe ethnic category, which is nowadays spread over large areas of the Sudan belt of West and East Africa. They are distinguishable from the "town" or "village" Fulbe (*Fulbe wuro*)[2] who gave up pastoralism at an earlier phase in Fulbe history and shifted to various urban sources of livelihood. Among the Fulbe of Cameroon the current division between the village Fulbe and the pastoral Fulbe is based on the migration of two culturally and economically differentiated groups that arrived in Cameroon in successive order. The first, the one that nowa-

1 The aricle is mainly based on ethnographic data first published in my dissertation *Performance and Performativity on Pastoral Fulbe Culture* (2003). For my research I conducted anthropological fieldwork in 1994-1996 and 1998, for 16 months in total, in the surroundings of Tibati, the administrative centre of the Djérém Department, Adamaoua Province, Cameroon. The research was part of the project *Changing Gender Relations in Three African Communities*, funded by the Academy of Finland, and directed by Professor Karen Armstrong. Additional funding was provided by the Graduate School of Anthropological and Ethnological Sciences, University of Helsinki, and the Nordic Africa Institute, Uppsala. Supplementary data was collected during my two shorter field trips to the same area in 2004 and 2005, of which for the latter I received a NIAS travel grant as well.

2 In the transcription of Fulfulde, the language of the Mbororo and other Fulbe, I follow Noye (1989).

days forms the sedentary village Fulbe society of Northern Cameroon and the traditional Muslim power elite of the region, had virtually finished its migration from Bornu Empire of the Central Sudan Belt into the region by the turn of the nineteenth century. In my field site in the Adamaoua Province of Cameroon, as in many other places in West Africa, the village Fulbe have intermingled with the local people. In Adamaoua this has occurred with such groups as Mbum, Wute, and Hausa of Nigerian origin through intermarriages. The second group, known as the Mbororo Fulbe, started to move into Cameroon in the second half of the nineteenth century from Bauchi, located in present-day Nigeria, and their migration into the region has continued until recent times. Unlike the village Fulbe, intermarriages between pastoral Mbororo and other ethnic groups are rare.[3]

Situated at the bottom of the local power hierarchy of Adamaoua, the Mbororo, who are for the most part illiterate, are culturally and politically marginalized. Concomitantly, they are considered as "the least Islamic" Muslims of the region irrespective of the fact that nowadays most of them perform the Islamic daily prayers, fast during the Ramadan, and an increasing number of those who have enough cattle to invest in a costly journey go on a pilgrimage to Mecca. For subsistence, the Mbororo practice animal husbandry and also cultivate land. This is enabled by the humid climate of Adamaoua where the pastoralists can stay with their herds most of the year in the same place, so that only some of the camp members move out for transhumance for three or four months from the main camp.[4] However, they consider themselves first and foremost cattle herders, the cattle providing them with a cultural identity distinguishing them from others. Apart from cattle, many Mbororo have a few sheep and some also keep chickens. Traditionally the Mbororo have been so called milk pastoralists, but the increased commercialization of cattle rearing in Adamaoua has led to a gradual shift from milk yielding pastoralism to meat producing one, meaning that an increasing number of animals are sold for meat. Irrespective of this development, cattle still symbolize the deep moral values and the integrity of the pastoral group. For the Mbororo, the close socio-moral bond between themselves and their herd is reflected, for example, in the cultural ideal of circulating the cattle only in one's own group or "own people" (*himBe am*), often conceived as one's lineage (*lenyol*).

In exploring the ways in which the possession or raising of cattle mediates social relations and gender among the Mbororo, I will examine two specific cultural contexts in which this mediation takes place. First, I will look at the central role that cattle have in mediating kinship, especially in the reproduction of the patrilineal ties through the Mbororo cattle inheritance system, which is underpinned by intergenerational cattle transfers through both male and female lines.[5] Second, I will look at the

[3] It should be added that, regarding the overall situation in Adamaoua, the dichotomy between the pan-ethnic Muslim population living in villages and towns and the Mbororo living in the bush is an oversimplification, as there are also Christian people living in villages of Adamaoua, and in the savannah. In addition to the Mbororo, for example, there are numerous Gbaya farmers, both Muslim and Christian, living in this area.

[4] While still living in Northern Nigeria, the Mbororo were forced to be much more mobile because of the long dry season of the region.

[5] The Mbororo have a patrilineal descent system in which individuals belong to their father's descent group. In addition, they prefer endogamic marriages the most appreciated of which is the marriage between patrilat-

role of animal sacrifices in the Mbororo traditional life cycle rituals, and, at the same time, discuss the gendered meanings of cattle in these rituals. Thus, in my analysis the social significance of cattle refers to different levels of "social," including both gendered individuals and their relations to others, as well as kin groups and the pastoral community at large.

LIVESTOCK AND CULTURAL CHANGE

After the heyday of the British structural-functionalism in anthropology, the cultures that had been the subjects of these studies were gradually stripped of their ahistorical vacuum. This development enabled researchers to study cultural change. A question to be asked then was: what happens to key symbols or objects that have represented the social and cultural continuity for people when the group is faced with a process of change? One way to search for an answer is to look at the symbols themselves, and focus on what Victor Turner (1967; 1968) has defined as their multivocal and multi-faceted character. For Turner, whose main interest concerned dominant symbols frequently used in collective rituals, the symbols of rituals were storage units of information, i.e. "multi-faceted mnemonics, with each facet corresponding to a specific cluster of values, norms, beliefs, sentiments, social roles and relationships within the total cultural system of the community performing the rituals" (1968, 1). Due to this multi-faceted character, a symbol acts as a magnet that draws new meanings, and so it can accommodate itself to new situations. To put it differently, certain symbols have the capacity for rich connotational enlargement, and thus they can provide a sense of continuity in the process of change, even though their meaning can be altered (Swantz 1970). Furthermore, it is not sufficient to examine the changes taking place in the meanings of the symbols as such, but also, as Jean and John Comaroff (1990, 196) have stated, "the transformation of any society should be revealed by the changing relations of persons to objects within it."

Anthropological research has offered descriptions of how pressures for change have affected the socio-symbolic meaning of animals in societies keeping livestock. An illustrative example of this is given by Hutchinson (1992; 1996) in her study of how coping with the long Sudanese civil war has shaped the Nuer's conceptualization of their cattle in relation to more recently introduced wealth categories such as money and guns. Ferguson's study (1985, 659–662), in turn, indicates that among the Basotho in Lesotho cattle cannot be isolated into a distinct "traditional" sphere of exchange, as investment in cattle, and the social prestige that this involves, is extremely dependent on the money that the adult men earn as migrant laborers in South African mines. Ferguson's example shows how livestock is also often considered a special category of prestige in societies in which animal husbandry does not form the main source of subsistence (see also e.g. Bohannan 1959).

In this article the question of change is taken into account by paying special attention to how the Islamization and sedentarization of the Mbororo have reshaped the meanings attached to animals in the inheritance system, and other forms of cattle transfer, as well as in the ritual sphere. I will describe the ways in which the pastoralists' continued cultural rapprochement with Muslims living in villages has influ-

eral parallel cousins.

enced their views of allocation of cattle to women. I will also give an example of how the Islamization of the Mbororo has affected the use and cultural ranking of different animals in a specific ritual central to the social reproduction of the whole pastoral community. Here the analysis will embrace still another layer of "social" by introducing the emerging Islamic interpretations of the significance of animals, especially sheep, in Mbororo culture.

MEDIATING SOCIAL BONDS THROUGH CATTLE

In African cattle herding communities, animal circulation has generally been connected to the most important events in the human life cycle, i.e. birth (animals for the newborn as presents), marriage (bridewealth, dowry etc.), and death (animal inheritance). M. M. Ring (1990, 94) has emphasized that, among the East African Dinka, rights to use inherited cattle unifies the heirs, and thus cements social relations. As for cattle circulation during the marriage procedure, in the Basotho community in Lesotho, bridewealth paid in livestock is the most important inter-generational transfer of wealth (Ferguson 1985, 666). Among the Nuer, in addition to the "ordinary" bridewealth cattle that are donated to specific relatives of the bride and to be affiliated to the so called ancestral herd, a kinsman is obliged to marry a ghost wife in the name of a deceased relative having died heirless. In both cases, it is ultimately through cattle, not semen, that patrilineal descent is traced among the Nuer (Hutchinson 1996, 62, 140, 173).

Unlike many other African cattle herders, the Mbororo, or "bush Fulbe" (*Fulbe ladde*) as many of them still call themselves, of Cameroon do not pay cattle bridewealth. Instead, an indirect dowry, which is intended to be used to buy necessary goods for the bride, is paid in cash by the groom's parents to those of the bride in two parts. With the first part of the indirect dowry money personal utility goods such as clothes, sandals, bijouterie, soap, a suitcase, and bedclothes are bought for the bride by her parents when she moves to her husband's camp for the first time. The core of the second part is composed of household utensils such as calabashes, pots, bowls, pails, a mattress, and a blanket. These things are bought for the young wife when she returns from her father's camp to her husband after having weaned her first child, that is, when the latter is approximately 18–24 months old. It should be added that, even though Mbororo do not pay cattle bridewealth, the indirect dowry money comes from cattle sales. Nevertheless, the absence of cattle bridewealth means that it is through the cattle inheritance system that the large majority of animals are transferred within the pastoral group. Most of a man's cattle are inherited by his sons in a system that Marquerite Dupire (1970, 152) has called "preheritage" (Fr. *préhéritage*) in which each son inherits his share of the father's stock at the time of his first marriage.[6] To be more accurate, the foundation of his herd is laid at the age of seven, when a cow, called *hooreeji*, is chosen for him from his father's herd, so that at the time of his first marriage there is already a small herd waiting for

[6] With the term *préhéritage* Dupire (1970, 152) emphasizes the difference between the cattle Fulbe (Mbororo) and other Muslim people in the Sudan belt. Among the latter the division of inheritance, whether this consists of cattle or other sorts of wealth, is postponed to the moment of the father's death.

him. Gradually the young boy starts to herd and take care of the cattle, but receives the right to decide the affairs his cattle (e.g. cattle sales) only after having married.

Some of the West African pastoral Fulbe groups are known for their traditional cattle lending and circulation systems which have guaranteed that also those who have lost their cattle for some reason are offered the opportunity to reconstruct their herds. For example among the Wodaabe of Niger, the most nomadic Fulbe in the Western Sudan belt, there is an institution called *habbanae* ("tying cows") which means that people lend each other cows, and the borrower can keep three calves of the borrowed cow before returning it to its owner (e.g. Maliki 1988, 178–179; Swift ed. 1984, 301, 315). According to Mette Bovin (1990, 52), these institutions have, however, have died out in places such as northern Burkina Faso. As Mirjam de Bruijn and Han van Dijk (1996, 316) note, very little has been written about cattle lending systems in other Fulbe groups. Regarding the Fulbe of Central Mali, who are the focus of the research conducted de Bruijn and van Dijk, the authors state that "Someone owning a large herd is certainly not obliged to give cattle to others, even his brother" (ibid., 327)." They continue later, "The situation… does not seem to conform to a generally held picture of social security arrangements and livestock transfers in pastoral societies. Very few livestock transfers take place outside the circle of close kin" (ibid., 329).

In Adamaoua, as in many other places in Cameroon and beyond, there are Mbororo who have only few animals or no cattle at all. The overall situation is not, however, as difficult for many pastoralists in Cameroon as it has been for those Malian cattle herders who have suffered from drastic cattle losses due to severe droughts. But although the circumstances in Central Mali and the field site in the Adamaoua Highlands of Central Cameroon are quite different, de Bruijn and van Dijk's description could be applied to the latter location as well. The same individualization or "privatization" of cattle ownership can be observed in both countries. Among the Cameroonian Mbororo, one central feature that has accelerated this development is the intensified sedentarization that has brought about changes in the socio-economic organization of this pastoral community. One such change, observed by Réné Dognin (1975) in Cameroon and by Moses Awogbade (1983) in the Jos Plateau in Nigeria, is the concentration of decision-making in the hands of the household head, that is, the father. As Awogbade (ibid., 22) notes, due to the extended authority of the father, it now takes ten or fifteen years longer for a pastoralist man in the Jos Plateau to set up his own autonomous camp than it has in the past. Similarly, Dognin (1975, 310–311) notes that the pattern of segmentation of families through the out-migration of young adult men has drastically declined as the pastoral Mbororo Fulbe have migrated to Cameroon. Another change, related to the increased authority of the father, is the emergence of the atomistic three-generation camps, each pursuing its own economic interests without significant pastoral co-operation with other camps (Awogbade 1983, 21–22). In addition, the sedentarization itself has decreased the need for co-ordination of seasonal movements.

As Tim Ingold (1986, 168) has aptly remarked "the pastoral animal carries around the pastoralist's social relations." In the present-day Cameroon, most intragroup cattle transfers are restricted to inheritance from father to son, and thus the most impor-

tant relationship that is carried by these animals is the one between lineal male relatives. In addition, I have observed occasions when Mbororo men who have greater cattle wealth donate calves to the sons of their less wealthy patrilineal male relatives, but these donations are extremely rare in comparison to the number of animals inherited through the father-son line. Another form of animal transfer worth mentioning is that of cattle given to women, either as inheritance or through marriage. In numbers the cattle owned by Mbororo women are few, to the point of being a subject of derision among their owners. This is because cattle are given to girls according to a very different set of principles than they are for boys. In the daughter's case, the father chooses a cow for her, but only when she has given birth to her first child, and even before that, another cow (*sadaaki*) has been given to her by her husband as a seal of their marriage, which increases the number of her cows to two.

The earlier timing of men's inheritance ensures that a woman's cattle wealth can never reach the same level as that of her brother. Additionally, although principally none of the cattle belonging to the women including the cow given by the father, the *sadaaki* cow, and any offspring of these animals can be sold without the woman's permission, her exclusive power to decide the affairs of her cattle is not always respected in practice. The fact that usually a woman does not hurry to move the cow given by the father to her husband's camp but, instead, is inclined to keep it and its calves in her father's care even years after the birth of her first child illustrates that in these matters a husband is never as trusted as one's father. I have followed several cases in which it was clear that the husbands had quite careless attitudes towards the animals of their wives (see Virtanen 2003, 210–211).

Irrespective of how many or few animals women manage to acquire and keep, there exists a general consensus of what they should finally do with them. Thus, if a woman has managed to build herself a small herd, her principal aim is to do as her husband does and distribute most, if not all, of her animals among her own children. During my fieldwork I noticed that some Mbororo women have a tendency to give a slightly larger number of animals to her favorite children than to others (for an example, see Virtanen 2003, 211–212), but the quantitative differences between the cattle given to favorite children and to others on the one hand, and to sons and to daughters on the other hand, were not large, even though boys usually receive slightly more animals than do daughters. The difference between the cattle given by the father and the mother is that, while the mother gives cattle to each child only when the child has reached adulthood, the father gives the standard number of one cow to each daughter at the time of her marriage, but rears animals for his sons little by little so that, at the time the sons set up their own households, each of them have a herd of their own. Most of women's cattle, i.e. those given to sons, strengthen their husbands' patrilineage. At the same time, however, many of these inherited cows and bulls underpin the mother's patrilineage as well, as the Mbororo prefer endogamic marriages, and thus a husband and his wife are often patrilateral parallel cousins or patrilineally related in some other way.

Finally, it is interesting to examine to what extent the Islamization of the Mbororo and their continued rapprochement with the Muslim villagers has affected the Mbororo cattle inheritance system. In earlier studies it has been highlighted how the

adoption of the Islamic Maliki system of inheritance, in which the daughter inherits half of her brother's share, has improved women's position among the more sedentary pastoral Fulbe in Nigeria (Hopen 1958; Waters-Bayer 1988). In the data I gathered, however, there is not the slightest indication that the pastoralists in Adamaoua in Cameroon would reshape their inheritance practices toward a system of that sort, and so the bulk of the cattle are still transferred from fathers to sons. In addition, during my fieldwork I have even observed a tendency among some pastoralist men to substitute the *sadaaki* cow with a gift of money, and thus further cut down their wives' connections to cattle. This practice was justified by the men as a "new" interpretation of Islamic law.

LIVESTOCK AND GENDER IN RITUALS

When considering the social significance of livestock in pastoral societies, analysis cannot be restricted to living animals circulated among persons and groups. At least as much attention should be paid to the important role that the pastoral products have in objectifying social identities and relations. The anthropological literature on cattle herding societies is filled with descriptions of the importance of animal sacrifices and milk sharing for people's communal identities and individual transitions (e.g. Evans-Pritchard 1956; Hutchinson 1996; Lienhardt 1961; Llewelyn-Davies 1981; Rigby 1971). Among the Mbororo, as in many other cattle herding groups in Africa (e.g. Dahl 1987; Talle 1988), there is a symbolic division between the "masculine" cattle and "feminine" milk which can be observed in the daily schedule of men and women. It is the men who, after milking the cows in the cattle corral, take their herds to pasture and watering places, or to the local cattle market on certain weekdays, to return only at sunset. Many of the women's activities, in turn, are centered in the place where the milk is reserved, that is, in the woman's own hut (*cuudu*) where a part of the milk is distributed among the children, and another part "put to sleep" for one night to become sour milk for butter, which is separated by shaking in a gourd. After these preparations the woman pours the sour milk with butter balls into a calabash and takes it the marketplace to sell.[7]

To better understand the male/cattle vs. female/milk dichotomy in the Mbororo society, I would like to employ Marilyn Strathern's (1988) discussion of gendered gifts, which she defines as objects or substances in which men's and women's influence in the society is objectified or, to put it differently, through which their influence is mediated. She writes: "By objectification I understand the manner in which persons and things are construed as having value, that is, are objects of people's subjective regard or of their creation" (ibid., 176). Among the Mbororo, it is the cattle for men, and milk for women that objectify their effect by moving or flowing through different spheres of their activity.[8] In the following, I will focus on how this objectification or mediation takes place in the ritual sphere of the Mbororo social life.

Among the Mbororo, the most central rituals in the social reproduction of the whole pastoral community are those related to the marriage procedure. Although

[7] In fact many women sell most of the dairy products to their private clients on their way to the market.

[8] For a more nuanced analysis of the socio-symbolic value of milk to Mbororo women, see Virtanen (2003, 196–209).

the number of these rituals has decreased due to Islamization,[9] there are still some five or six ritualized occasions related to contracting a marriage. A short description of these rituals is as follows.[10] The procedure begins with a ritual called *koggal*, the name of which derives from the *koggal* marriage, that is, from the arranged first marriage for which this ceremony serves as a commencement. During *koggal* a symbolic hut is constructed in the camp of the bride's parents of long branches of a specific tree called *barkeehi* (*Bauchinia reticulata*), which in Mbororo understanding has a blessing effect, by tying their tops together. This ritual is to be performed approximately two years before the bride is taken to live with her groom, i.e. when she is 11–13 years old. Amongst the described rituals described here, *koggal* is the one that is currently most rarely carried out in Adamaoua, and people are in no way expected to perform this ceremony. Another ritual that can be seen as having become a substitution for *the koggal* is the Islamic *kaBBal* (literally "tying of marriage") in which a *mallum*, i.e. a person with Koranic schooling, confirms the marriage in the presence of two witnesses, presenting the bride's and groom's kin respectively. Here the marriage is sealed by the distribution of cola nuts among those present and by the groom's representative paying the *rubu*, the marriage fee of 5,000 CFA francs,[11] to the representative of the bride. Next, usually several months after the *kaBBal*, the groom's female relative, typically the mother, comes to fetch the bride to live with her son. Before the bride leaves, her mother presents the things bought to the bride with the first indirect dowry. After arriving in her husband's camp the young woman helps her mother-in-law with daily routines and then returns to her parents' camp during the last months of her first pregnancy. This *boofiiDo* ("hatcher") period will cover the time till the weaning of her firstborn child. Meanwhile, seven days after the birth of the baby, the woman's family arranges a name-giving ceremony, *indeeri*, for the child. This is an important event in which the child is incorporated into his/her father's lineage, the pastoral group, and the Islamic community at large. At the same time, this event also elevates the parents of the child into the status of full social adulthood. In the case of the husband, it is only with the birth of his firstborn that he gets full rights to decide the affairs of his herd, even if he has been taking care of his cattle long before becoming a father. While the *indeeri* of the first child is especially crucial for the parents' new status, the births of other children are also important. Every succeeding *indeeri* feast reinforces the adulthood status of the parents, especially so in the case of the first two or three children. As for the children themselves, *indeeri* is arranged for all of them in principally the same way. The only difference being that, apart from the firstborn, the ceremony takes place in the father's camp.

The succeeding ritual, called *Bantal*, is performed in the natal camp of the new mother, immediately before she leaves her parents with her first child. In the ritual the mother's new wealth, consisting of the things that have been bought with the second indirect dowry money (*ceede Bantirde*) and gifts from relatives and friends, is

[9] This development is linked with a wider socio-religious change decreasing cultural elements that are considered non-Islamic among the Mbororo, see more e.g. in Burnham (1996) and Dupire (1970).

[10] For a detailed discussion of these rituals in Adamaoua, see Virtanen (2003, 152–176).

[11] The sum is equal to 7,62 euros.

laid on the ground to be admired. The things belonging to the indirect dowry are picked out one by one by the mother's female relatives for approval by the male representatives of the new father's patrilineage. Finally, when the new mother has moved to his husband's camp with their first child, and settled down in the new hut constructed for her, it is time to arrange *defol* ("cooking"), a ceremony that concludes the entire first marriage procedure, and ritually marks the woman's status as a wife and mother of full standing. Among the most central episodes during the *defol* are the admiration and praising of the new hut, furnished and decorated with the new wealth of the wife, by other women, and the symbolic serving of the "first meal," prepared by the wife with the help of her friends, to the husband and his patrilineal male relatives. It is actually after this ritual that the wife gets full rights to the milk of the cows allotted to her by her husband.

To return to the initial question, namely the meaning of meat/milk in the ritual sphere, there is variation in the sharing of these foodstuffs in different marriage rituals. The sacrifice of cattle (*kirsol*) and sharing of meat to all of those present is accentuated in the first rituals. The way this is done is similar in all Mbororo celebrations in which a bull is sacrificed: men cut up the carcass, take one or both of the forelegs, roast these over a campfire near the cattle corral, and consume that special meat among themselves. They give the rest of the meat to the women, who cut it into smaller pieces and prepare the meat along with rice in cooking pots. Finally, women divide the food, the rice and the sauce with pieces of meat into portions that are fit to be served to each age group, and to men and women respectively. Often, if there has been enough meat, portions of raw meat are also given to departing guests to take home. Before the common meal, it is also a customary practice to offer the people maize or manioc gruel cooked with milk.

Towards the end of the series of marriage rituals meat gradually loses its central relevance, and the sharing of milk takes a more dominant role. Thus, while cattle sacrifice, usually performed by slaughtering a bull, is of the most importance in *koggal* and *indeeri*, it is not expected to be performed in *Bantal* and *defol*. In *Bantal*, however, meat, which might consist of a slaughtered bull or a smaller portion of meat bought from a butcher, can be served in the same manner as people serve it in different kinds of communal gatherings if they have the means to do so.[12] On the contrary, the *defol*, being the ritual that most symbolizes female agency, boiled milk served together with cooked rice and oil is the central food, while meat is totally absent. Additionally, milk has an important role in *indeeri* during which the hair of the baby is shaved with a razor blade and then thrown into a calabash filled with milk and some leaves of a *barkeehi* tree. The importance of this specific act for the Mbororo identity is nicely expressed by Ndoudi Oumarou, a Mbororo man from Cameroon, who writes in his biography that nobody can claim to belong to the Mbororo if he/she has not been "*rasé au lait*," i.e. shaved in milk (Bocquené 1986, 118). Finally a woman, often the mother's sister-in-law, throws the contents of the calabash onto the

[12] A bull is often sacrificed also in yearly Islamic feasts such as the feast finishing the month of Ramadan, as well as the feast that is arranged for the honor of a person who returns from the pilgrimage to Mecca. Principally, among the Mbororo, all animal slaughters can be considered Islamic sacrifices, as the slaughterer is supposed to ask for God's blessing while killing the animal.

roof of the mother's hut, high above its doorway. When asked, my informants commented on this practice by saying, for example, that the milk-hair mixture is thrown onto the hut in order to ensure the growth of the child. In some Mbororo groups the whole calabash along with its contents is buried in the cattle corral, and still in others part of its contents are consumed by adult men (see Dupire 1962; 1970). Despite the differences between these practices, they all seem to be connected to the analogy that the pastoralists draw between the fertility of cattle and fertility of humans (cf. Hutchinson 1996, 61–62), and to the human/cattle equation in pastoral societies more generally (Hutchinson 1992, 296).

CATTLE VERSUS SHEEP: NEGOTIATION OF PASTORAL AND ISLAMIC VALUES

As mentioned earlier, along with Islamization, some elements of rituals, or even whole rituals themselves, that are considered non-Islamic have gradually been removed from the Mbororo culture. Along with this development, one can observe a certain decrease in the value of the cattle sacrifice. A good example of this is *kaBBal*, the Islamic ceremony in which a new marriage is confirmed through the distribution of cola nuts, while no animal sacrifices are performed. Another ritual that merits discussion is *koggal,* the gradual disappearance of which has also removed the bull sacrifice that earlier served as the first seal of the prospective marriage. It is, however, interesting to note that, although there is no religious obligation to sacrifice cattle in order to confirm a marriage, my Mbororo informants emphasized that one year before the bride's arrival the groom's father should sacrifice a bull. Indeed, people openly showed their moral disapproval of those parents who prefer that the groom's family give them money or gifts instead of sacrificing an animal when marrying their daughter. Thus, it seems that, in the substitution of the bull sacrificed earlier in *koggal* with another bull slaughtered a year before the coming of the bride, many Mbororo still regard their cattle as the central currency in the mediation of marriages, as well as other intragroup social relations. In their own words, the use of money in these matters demeans the whole idea of marriage as "pure commerce" (*coggu meere*). A similar moral disapproval concerning the tendency to move to money-related transactions from the animal-related ones can be found when indirect dowry money is mentioned, which, in the Mbororo view, has nowadays reached an amount that is too large. What unites the two successive dowries discussed earlier is that they both belong to new types of money-related marriage payments, which have increased in importance, at the expense of cattle sacrifices, and together they constitute the main part of the gifts to the bride's family. These are gifts that, in Dupire's (1970, 29) words, have "taken the form of bride price," and this process has occurred along with the increased sedentarization and Islamization of the pastoralists.

The conversion of the Mbororo to Islam and their appropriation of the customs of the Muslim villagers have also led to a shift from cattle to sheep sacrifices in some ritual contexts due to the more important symbolic weight given to sheep in Islamic religion.[13] Perhaps the ritual that best highlights the tension inherent in this shift is

[13] One of the most important events in which sacrificing a sheep becomes a religious symbol

the name-giving ceremony, i.e. *indeeri*. The order commonly followed in *indeeri* feasts in contemporary Adamaoua is that the sheep is slaughtered early in the morning but cattle are only slaughtered after the name-giving and prayers. This order echoes what Dupire (1970, 160) observed earlier in the name-giving ceremony among the Wodaabe Fulbe of Niger, namely, the performance of separate "Muslim" and "traditional" rites. Among the Wodaabe the split can be seen in the temporal delay as the slaughtering of the sheep, considered as a Muslim sacrifice, is performed on the seventh day after the birth, while the slaughtering of cattle takes place only when the larger pastoral group gathers for their annual *worso* meeting during the wet season. In Adamaoua, where the pastoralists no longer practice these annual gatherings, the split is less evident, but it can still be discerned in the mutual order of the two sacrifices.

An interesting detail is the priority that my informants gave to the cattle sacrifice. For example, when I asked people how *indeeri* is performed they always spoke of the cattle sacrifice but quite often forgot to mention the sacrifice of the sheep. The same priority came up when people spoke of name-giving ceremonies in which only a sheep was slaughtered, as there were always those who complained about the absence of cattle sacrifice and said afterwards "*indeeri* was not performed."[14] Whether appropriate or not, complaints of this sort reflect the deep attachment that the Mbororo have to their traditional cattle sacrifices. Indeed, the Muslim idea that a great part of the sacrificed animal should be given as alms (*sadaka*) to the poor (Stenning 1959, 117) has not gained much ground among the Mbororo in Adamaoua for whom the ritual slaughtering of cattle and the distribution of the meat among those present still has more to do with the unity of the pastoral group than with any wider religious ideals. In fact, as I have discussed in more depth elsewhere (Virtanen 2007, 11), this is also the case in the Mbororo life-cycle rituals, Islamic yearly celebrations, and the cattle sacrifice that the Mbororo occasionally perform in the honor of a visiting relative, and thus it is often quite difficult in practice to differentiate between the "religious" and "pastoral" motives behind the animal sacrifices in varied situations.

DISCUSSION

For the Mbororo, the migration from Nigeria to Cameroon has resulted in a more sedentary way of life, which in turn has tied them in a closer, and more hierarchical, relationship with local Muslim chiefs and Muslims villagers in general. This rapprochement has left its traces on the Mbororo socio-religious practices, but much continuity can also be observed here. In looking at the cattle inheritance system, one can notice the persistence of the anticipated inheritance system, and the relatively small amount of animal circulation outside the lineal kin, which is partly related

among Muslims is the great sacrificial feast *Eid-al-Adha* (Arab.) that concludes the pilgrimage to Mecca. It is a remembrance of the event in which Ibrahim (Abraham in the Judaeo-Christian tradition) planned to sacrifice his son Ismael (replacing Isaac in the Koranic version of the story). When the sacrifice is performed at home, Muslims can replace the sheep with a goat or a camel.

[14] The absence of cattle sacrifice often results from the simple fact that the family organising the ritual is too poor to afford it. Thus, the Mbororo society can be understood as an unequal system, at least in the cultural sense, as the "right way" of performing rituals is out of reach of those, who do not have enough cattle to invest in animal sacrifices.

with intensified sedentarization. Another feature, especially seen in the case of animals inherited by women, is a similar combination of two conflicting principles as de Bruijn and van Dijk (1995, 321) have shown in the case of the Fulbe of Central Mali, namely a "mixture of Islamic rules (*juulde*) and local practice (*al'aada*)" of the pastoralists. Thus, whereas Islamic rules emphasize the rights of individuals, both male and female, in relation to the group, the traditional pastoralist society focuses on loyalty to the agnatic kin group. It could also be questioned whether the two systems of inheritance are commensurable at all as they are based on quite different principles.[15] Whereas among the Muslim villagers, the wealth of the father is distributed only after his death, pastoralist men and women are expected to transfer their cattle to their sons and daughters as soon as these children reach their social adulthood through marriage. For the Mbororo, changing over to the system of the villagers would thus not simply mean a redefinition of gendered property, or a "softening" of the hierarchy between men and women as basic categories of people (cf. Ferguson 1985). More than that, it would radically modify the generational dynamics in their society and challenge people's basic ideas of how social relations are constructed through cattle in the first place.

Hutchinson (1996), in her vivid monograph of the Nuer of Sudan, compares the different ways in which men and women achieve full parental status. For Nuer women, physical and social maternity are inseparable, as it is the individual fertility that is "the principal route to self-fulfillment, security, and independence." In contrast, the procreative powers of men, as Hutchinson emphasizes, "were essentially collective" (ibid., 62). She continues:

> "A man's reproductive potential merged with that of his agnatic kinsmen through 'the ancestral herd', upon which he and his patrilineal relatives all drew in order to marry, bear sons, and thereby extend the patriline. Male corporate solidarity and continuity were, indeed, founded on this principle of 'communal fertility' through shared cattle rights." (ibid.)

Although one central function of the Mbororo marriage rituals is to transform individuals, both male and female, into social adults, the symbolic meanings given to cattle and milk in these rituals seem to resonate with Hutchinson's argument. As we have observed, the milk, which takes a more and more visible role towards the end of the rituals, objectifies the social transition of an individual woman. This process is culminated in the *defol* ceremony in which the new wealth, denoting the heightened status of the woman, is displayed in her new hut in full array. In contrast, the bulls sacrificed during *koggal* and *indeeri* rituals carry a more collective significance. In *koggal* the sacrifice symbolizes, in addition to a prospective marriage, a first seal between two kin groups to be later tied together into a relationship between in-laws (*esiraaBe*). In *indeeri* the sacrifice of a bull, together with other ritual details (see Virtanen 2003, 160–166), transforms the child, whether male or female, from the

[15] An interesting case concerning a similar dilemma in a different cultural context is offered by Liazzat Bonate's (2006) article on the relationship between local matrilineal and Islamic conceptions of land property and inheritance in northern Mozambique.

undefined status of newborn into a social person, that is, a member of his/her father's patrilineage. In the case of the young men, I would even argue that it is more through the child than through cattle as such that his status is transformed, as the series of rituals in which the firstborn baby is first socially recognized and then "returns" to the father's camp with the mother transforms the status of both parents simultaneously. In a comparable way, the ritual introduction of the new mother's newly built hut in *defol* announces the transformed autonomy of both the wife and the husband, at the same time sealing their mutual dependence. On a more general level, the Mbororo tendency to sacrifice a bull and distribute its meat in celebrations of all kinds is related to the idea of collective belonging to the pastoral group/lineage, which is of equal importance to both men and women, each of who receive their share of the sacrificed beast. Here I would like to come back to Comaroff's (1985, 72) idea of cattle as double signifiers denoting simultaneously individual identities, which can be seen in the transformations of young Mbororo into brides and grooms or newborn children into social persons, and as generalized icons of the social structure, which can be seen in the structure of a society produced and maintained through patrilineal ties.

Returning to the relationship between the Mbororo woman and milk, it should be added that during the last ten years there has been a drastic change occurring in Adamaoua, as many Mbororo men, following the example of the Muslim villagers, have started to seclude their wives. This means that for an increasing number of pastoral women the selling of milk is nowadays forbidden, mostly due to the high mobility it requires.[16] To my understanding, in conjunction with this development the using of milk in the ritual sphere has become even more important in mediating Mbororo women's influence in their society than before.

CONCLUSION

In this article I have elaborated the socio-symbolic and gendered significance of cattle among the Mbororo cattle herders of Cameroon in two specific cultural contexts: their inheritance system and marriage rituals. I have also addressed the question of cultural change that is related to the process of *sedentarization* and the villagers' pressure on the pastoralists to become "better" Muslims. In addition to different manifestations of change, the analysis has also revealed certain amount of cultural continuity as the Mbororo seek to balance between the "old" and "new" ways.

For the Mbororo, as for many other pastoral people, cattle undoubtedly form a dominant symbol in the Turnerian sense, in that they have the capacity to draw new meanings in altered situations. It is thus not surprising that cattle so easily intrude in new spheres of activity, which at a certain point in time become relevant in the social life of the people. Although, in the interconnected processes of Islamization and *sedentarization* the Mbororo have found new "traditional" ways to employ cattle symbolically in order to substitute the old disappearing ones, such as replacing *koggal* with another bull sacrifice, or complementing the sheep sacrifice in *indeeri* with an additional cattle sacrifice, there is also much evidence of how cattle have been incor-

[16] For a more detailed description of the puzzling effects that female seclusion has for the lives of both Mbororo women and men, see Virtanen 2003, 213-218.

porated into more recently adapted rituals, such as selling cattle for the purpose of going on the pilgrimage to Mecca,[17] that give religious prestige to people performing them. In a way the pressures for change, coming from outside the pastoral group, have resulted in "re-invention" or "multivocalization" of the meaning of cattle, and thus ultimately have provided a sense of some cultural continuity as the Mbororo seek to make their lives and their place meaningful in the changing world.

REFERENCES

Awogbade, M.
1983 *Fulani Pastoralism: Jos Case Study*. Zaria: Ahmadu Bello University Press Limited.

Bocquené, H.
1986 *Moi un Mbororo: Ndoudi Oumarou, Peul Nomade du Cameroon*. Paris: Edition Karthala.

Bohannan, P.
1959 The Impact of Money on an African Subsistence Economy. In *Journal of Economic History* 9, 491–503.

Bonate, L.
2006 Matriliny, Islam and Gender in Northern Mozambique. In *Journal of Religion in Africa* 36(2), 139–166.

Bonfiglioli, A. M.
1988 *Dudal: Histoire de Famille et Histoire de Troupeau chez un Groupe de Wodaabe du Niger*. Cambridge: Cambridge University Press.

Bovin, M.
1990 Nomads of the Drought: Fulbe and Wodabe Nomads between Power and Marginalization in the Sahel of Burkina Faso and Niger Republic. In *Adaptive Strategies in African Arid Lands*, ed. Mette Bovin and Leif Manger, 29–57. Uppsala: Scandinavian Institute of African Studies.

Bruijn, M. de and Han van Dijk
1995 *Arid Ways: Cultural Understanding of Insecurity in Fulbe Society, Central Mali*. Amsterdam: Thela Publishers.

Burnham, P.
1996 *The Politics of Cultural Difference in Northern Cameroon*. Washington D.C.: Smithsonian Institution Press.

Comaroff, J.
1985 *Body of Power, Spirit of Resistance: The Culture and History of a South African People*. Chicago: University of Chicago Press.

Comaroff, J. and J. Comaroff
1990 Goodly Beasts, Beastly Goods: Cattle and Commodities in a South African Context. In *American Ethnologist* 17(2), 195–216.

Dahl, G.
1987 Women in Pastoral Production: Some Theoretical Notes on Roles and Resources. In *Ethnos* 52(1–2), 244–279.

Dognin, R.
1975 Sur trois ressorts du comportement peul. In *Pastoralism in Tropical Africa*, ed. Théodore Monod, 298–321. London: Oxford University Press.

Dupire, M.
1962 *Peuls nomads: Etude descriptive des Wodaabe du Sahel nigérien*. Paris: Institut d'ethnologie.
1970 *Organisation sociale des Peuls: Étude d'ethnographie comparée*. Paris: Plon.

[17] For the discussion of Mbororo pilgrimage, see Virtanen (2007). Other examples of more recent Mbororo ways of harnessing cattle in enhancing one's Islamic religiosity can be found in Virtanen (2008).

Evans-Pritchard, E. E.
1940 *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People*. Oxford: Oxford University Press.
1951 *Kinship and Marriage among the Nuer*. Oxford: Clarendon Press.
1956 *Nuer Religion*. Oxford: Oxford University Press.
Ferguson, J.
1985 The Bovine Mystique: Power, Property and Livestock in Rural Lesotho. In *Man (N.S.)* 20, 647–74.
Hopen, C. E.
1958 *The Pastoral Fulbe Family in Gwandu*. London: Oxford University Press.
Hutchinson, S.
1992 The Cattle of Money and the Cattle of Girls among the Nuer, 1930–83. In *American Ethnologist* 19: 294–316.
1996 *Nuer Dilemmas: Coping with Money, War, and the State*. Berkeley: University of California Press.
Ingold, T.
1986 *The Appropriation of Nature: Essays on Human Ecology and Social Relations*. Manchester: Manchester University Press.
Lienhardt, G.
1961 *Divinity and Experience: The Religion of the Dinka*. Oxford: Clarendon Press.
Llewelyn-Davies, M.
1981 Women, Warriors, and Patriarchs. In *Sexual Meanings: The Cultural Construction of Gender and Sexuality*, ed. Sherry Ortner and Harriet Whitehead, 330–358. Cambridge: Cambridge University Press.
Noye, D.
1989 *Dictionnaire Foulfouldé-Francais: Dialecte Peul du Diamré Nord-Cameroun*. Paris: Librairie Orientaliste Paul Geuthner.
Rigby, P.
1971 The Symbolic Role of Cattle in Gogo Ritual. In *The Tranlations of Culture: Essays to E. E. Evans-Pritchard*, ed. T. Beidelman, 257–291. London: Tavistock.
Ring, M. M.
1990 Dinka Stock trade and Shifts in Rights in Cattle. In *Property, Poverty and People: Changing Rights in Property and Problems of Pastoral Development*, ed. P. T. W. Baxter and R. Hogg, 192–204. Manchester: University of Manchester.
Stenning, D.
1959 *Savannah Nomads: A Study of the Wodaabe Pastoral Fulani of Western Bornu Province Northern Nigeria*. London: Oxford University Press.
Strathern, M.
1988 *The Gender of the Gift: Problems with Women and Problems with Society in Melanesia*. Berkeley: University of California Press.
Swantz, M.
1970 *Ritual ans Symbol in Transitional Zaramo Society, with Special Reference to Women.*Lund: Gleerup.
Swift, J. (ed.)
1984 *Pastoral Development in Central Niger: Report of the Niger Range and Livestock Project*. Niamey: Ministry of Rural Development and United States Agency for International Development (USAID).
Talle, A.
1988 *Women at a Loss: Changes in Maasai Pastoralism and Their Effects on Gender Relations*. Stockholm: University of Stockholm.

Turner, V.

1967 *The Forest of Symbols: Aspects of Ndembu Rituals*. Ithaca: Cornell University Press.

1968 *The Drums of Affliction: A Study of Religious Processes among the Ndembu of Zambia*. Oxford: Clarendon Press and the International African Institute.

Virtanen, T.

2003 Performance and Perfomativity in Pastoral Fulbe Culture. In *A Doctoral Dissertation. Research Series in Anthropology* 4. Helsinki: University of Helsinki.

2007 Karjanhoitajat Mekassa: Mbororojen pyhiinvaelluksen moraalitalous [Pastoralists in Mecca: The Moral Economy of Mbororo Pilgrimage], In *ELORE* [A Scholarly Online Journal in Folklore Studies] 2/2007. http://www.elore.fi/arkisto/2_07/vir2_07.pdf (accessed 15 June 2009).

2008 Pastoral Sufis and Indigenous City Muslims: Frictions in Making a Moral Community in Cameroon. In An unpublished paper presented in the seminar "Moral Communities, Moral Ambiguities" organised by Helsinki Collegium for Advanced Studies together with International Institute for the Study of Islam in the Modern World (ISIM), and Academy of Finland, October 2008, Helsinki, Finland.

Waters-Bayer, A.

1988 *Dairying by Settled Fulani Agropastoralists in Central Nigeria: The Role of Women and Implication for Dairy Development*. Kiel: Wissenschaftsverlag Vauk.

8

Fluctuations in the value of horses in Mongolia before and after Socialism

Tomoko Nakamura

Center for Northeast Asian Studies, Tohoku University, Japan

ABSTRACT

Mongolian stockmen herd five kinds of livestock: cows, horses, goats, sheep, and camels. Each kind has a different function. Furthermore, these functions vary depending on the social and environmental situation. Consequently, the value of animals for the Mongolian people has changed over time. Before the introduction of socialism, horses, for example, were used as a tool of transport and sold at markets, and thus they had a significant pragmatic value. With the appearance of motorbikes and cars, however, this pragmatic value has declined. On the other hand, the milk of horses (*kumis*), which has long been consumed among pastoralists, has retained its pragmatic value. Horses also have symbolic value. In earlier times, the ability to ride and hunt on horseback symbolized people's latent abilities as warriors. Currently, the possession of strong horses symbolizes both the capability of their owners as pastoralists and the social power of affluent people. Thus, although horses have continued to retain their symbolic value to signify human capability, the type of capability has changed over time.

Keywords: Value Theory, Mongolia, Pastoral Society, Horses, Livestock

INTRODUCTION

The concept of value has long been of interest in the humanities and social sciences from several perspectives. David Graeber, who has analyzed value theories in anthropology and sociology in the past, proposes that three large streams of thoughts converge in the present meaning of value:

> 1. "values" in the sociological sense: conceptions of what is ultimately good, proper, or desirable in human life.
> 2. "value" in the economic sense: the degree to which objects are desired, particularly, as measured by how much others are willing to give up to get them.
> 3. "value" in the linguistic sense, which goes back to the structural linguistics of Ferdinand de Saussere (1966), and might be most simply glossed as "meaningful difference. "
>
> [Graeber 2001: 1–2]

In actual societies, these three meanings of value are intermingled. Therefore, an examination of the functions of value offers a useful approach to understanding this often complicated intermingling. For example, in the case of the relationship between animals and human beings in Mongolia, values can be divided into two categories, either pragmatic or symbolic, according to the function of each value. These two categories are related to the main three streams of meaning. The degree of the pragmatic value is measured by the degree to which livestock functions as a practical tool. An analysis of horses in Mongolia, along with other animals, delineates the dynamism and changing values of livestock.

Previous research on the value of animals in Mongolia focused either on the pragmatic or the symbolic aspects. Investigation into the pragmatic values was concentrated on ways that livestock management has changed over time (Nakamura 2003). For example, the types of livestock raised by pastoralists have changed in accordance with the rising prices of cashmere in the Ejina-Qi banner in Inner Mongolia. An illustration of the other type of research, the symbolic value of animals, is suggested in Konagaya's work (1994). Referring to the relationship between wild animals and human beings, she stated that wild animals are the most sacred of the Mongolian animals. Ortnast (2003) analyzed oral poems called "Irügel," or congratulations, sung in rituals for stallions. He pointed out that Mongolian people see importance in the spiritual meaning of horses as "friends" rather than the pragmatic value of the animals as livestock. His analysis demonstrates how horses add strength to rituals and festivals as symbols of power and wealth.

Although previous research has illustrated the symbolic value of animals in a variety of cases, the change of this symbolic value bears further investigation. In other words, symbolic value has been presumed to be stable from past to present. However, in reality, the natural and social environment of the pastoralists and their livestock has dramatically changed. In response, a shift of pragmatic value due to environmental change has also occurred (Komiyama 2007 et al.).

The value of horses in Mongolia before and after socialism illustrates that the symbolic value shifts from one animal species to another over time and that the symbolic value which one animal has changes over time.

THE EASTERN PART OF THE MONGOLIAN PLAIN: A THRIVING AREA FOR RAISING HORSES

In the Mongolian Plain, located from the eastern part of the nation of Mongolia to the surrounding areas of the Shilingol banner in Inner Mongolia, raising horses is a majour living. Although these areas span different countries, they share the same geographic characteristics and lie in the same plain.

Considering the current situation, the difference of nationality surely affects the lifestyles of the people. For example, in China, settlement of the pastoralists was carried out through national government policy (Humphrey & Sneath 1999). As a result, the number of pastoralists who settled in to raise livestock suitable to their area has increased. On the other hand, in the nation of Mongolia, the majority of pastoralists are still nomadic. These differences require that the two areas be investigated independently of each other; it would be inappropriate to mix them.

Map 1. Fieldwork Area Map

Consideration of the earlier pastoralists, between the end of the 19th century and the beginning of the 20th century, however, is a different matter. During this era, national borders were different from now, and there was no difference in the style of pastoralism between Inner Mongolia and Mongolia. Furthermore, during these earlier times, the number of people who crossed national borders was much larger than it is now, as there were many Chinese merchants who conducted their business in the area which corresponds to the current Eastern part of the nation of Mongolia. Consequently, during this era, the Eastern part of the nation of Mongolia and some parts of Inner Mongolia could reasonably be analyzed together.

Much of Mongolia is located on a plateau, where the average altitude is 1580 meters. The area higher than the average altitude covers 40 percent of the whole country, and the area higher than 1000 meters above sea level occupies more than 80 percent (Morinaga 2008: 28). Eastern Mongolia is a relatively low, flat area. Garshar–in the Henti prefecture, in Eastern Mongolia is a hilly area with elevations between 1000 and 1500 meters above sea level.

According to the Institute of Meteorology and Hydrology, the average annual temperature of Eastern Mongolia ranges between –0.9 and 1.5 degrees Celsius. July is the warmest season; the average temperature in the plateau ranges from 20 to 24 degrees Celsius. January is the coldest season; the temperature varies between –19.1 and –23.7 degrees Celsius. The monthly average rainfall is 188 to 399 millimeters. Ninety percent of the rain falls between April and November, also the season when the grass grows, making this area geographically suitable for raising horses.

Pastoral life can be described in the following terms. According to informants, the average stockman raises 360 goats, 275 sheep, 200 horses, 16 cows and 16 camels. The goats are indigenous, not cashmere goats. Most income derives from the marketing of wools and livestock. In a family, men engage in pasturage, while women milk cows and sheep. Men help with the milking of horses. The people migrate with their animals from one pasture to another three times per year. Each pasture is about 20 kilometers distant from the other. For migration, places close to water are best. The people enclose pastures in summer, but dismantle them for the winter. Although they do not prepare hay for horses, they purchase and store 25 kilograms of hay for cows, sheep, and goats.

Figure 1 shows the change in numbers of camels, horses, and cows since 1990 in Mongolia. The dramatic reduction of horses and cows results from drought and snow disaster since the year 2000. The number of cows is almost equal to that of horses. After 1960, a large number of national collective farms were established throughout the area with assistance from the Soviets. Forty-five large-scale mechanized dairy farms had been built by 1990. However, many of these farms were later

privatized after the introduction of a market economy; as a result, most of them had to shut down due to lack of funds and foreign technicians (Komiyama 2007: 36). Lately, however, in response to the demand for dairy products and in order to avoid further natural disasters, intensive livestock agriculture among independent farmers has been growing rapidly. In general, a small farm includes 10 to 20 cows. The number of farms of this type increased to 400 by 2006 (Komiyama 2007: 36), illustrating the high pragmatic value of cows.

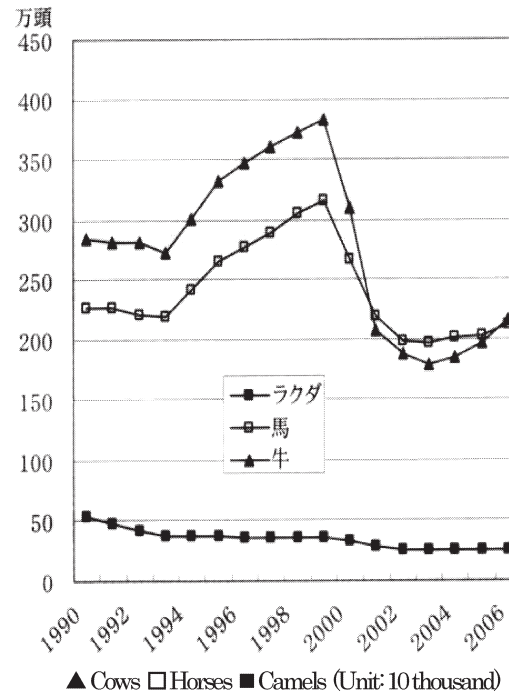
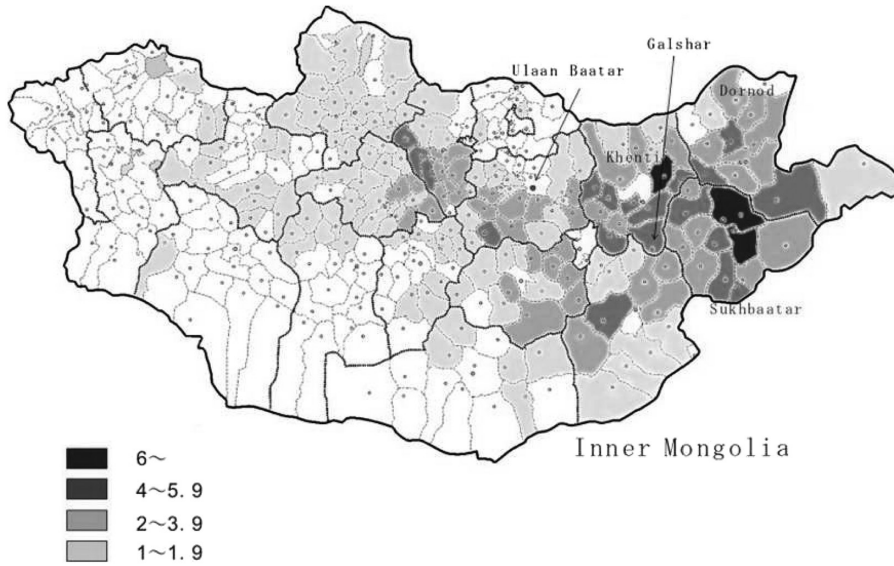


Fig. 1. The Transition of Camels, Horses and Cows since 1990 (Komiyama 2007: 38)

On the other hand, horses seem to have a different value from that of cows even when their numbers are similar. As Map 2 shows, horses are raised extensively in the Eastern part of the Mongolian plain for diverse purposes. For example, people may make alcohol from horse milk (*kumis*) in the summer. People also use the horses for transport. However, horses are not necessar-



Map 2. Distribution of Horses in Mongolia 2002

ily considered to be livestock with high pragmatic value. Pastoralists enjoy *kumis* in their homes rather than selling it to others and thus earn no income from it. Furthermore, horses used for transport have been gradually replaced by cars or motorbikes. Consequently, the pragmatic role which horses play is not so large as that of cows.

THE MEANING OF HORSES BEFORE THE INTRODUCTION OF SOCIALISM

Horses as Products Mongolian pastoralists esteemed horses as commodities and items of trade in this area up until the early 20th century and the introduction of socialism. During this time, traveling merchants engaged in active trade with pastoralists. There was a group of merchants, with its center in Guihua District (the current Huhhot), who thrived in the area corresponding to the current Mongolia and the Xingjiang Uighur Autonomous Region. Although some of livestock products which merchants in the group collected in the Mongolian Plain were consumed in and around Guihua District, most of them were sold in Beijing and Tianjin.

Guihua District was well known in the region as a trading market for sheep and horses (Chinese People's Political Consultative Conference 1984: 134). At the end of the Ching dynasty (1616–1912), merchants around Huhhot collected about 800,000 sheep and 100,000 horses, mainly from outlying areas of Huhhot, particularly the area now known as Mongolia. Sheep and horses from Outer Mongolia accounted for 70 to 80 percent of all sheep and horses for sale; and those from Inner Mongolia, 20 to 30 percent (Chinese People's Political Consultative Conference 1984: 134–136). According to Kondo, no record could be found showing transport of livestock from the Xingjiang Uighur Autonomous Region by way of Huhhot. Therefore, livestock brought to Huhhot must have been from Outer and Inner Mongolia (Kondo 1995: 77). Considering the contemporary social situation at the time, horses for transport, such as military horses, were most likely to have been exchanged. The Ching dynasty also set up several farms in the Mongolian plain, and pastoralists in the region paid a third of their herds to the government (Lattimore 1941–1942: 25). Because of their use as transport and use as payment to the government, horses enjoyed a high pragmatic value at that time. Especially, horses for merchandise plausibly had value in the economic sense described in Graeber's theory. The use of horses as transport is also close to the economic sense of value.

Horses in Hunting Up until the early 20th century, hunting played an important role for all Mongolians, and the horse was an essential tool for hunting. In Mongolia, where there are many types of hunting, the scale of hunting varies from an individual level to a large group level. Hunting methods also vary from simple traps, in which people sow beans soaked in alcohol, for example, to capture drunken pheasants, to hunting which makes use of horses to catch bigger animals. In the latter type of hunting, people generally hunt as a group of 4 or 5 people on horseback. Bringing tents with them, they would sometimes hunt for many months in a single session (Joseph 1941: 43).

Hunting with horses can be divided into two categories: hunting as a secondary occupation or hunting as military exercise. In the latter period of the Ching dynasty,

hunting as a military exercise came close to being competition. Hunting as a secondary occupation for pastoralists seems to have prevailed in Mongolia before the collectivization of agriculture. During those times, in the area close to mountains, two thirds of all food was derived from hunting. It was a way of obtaining animal protein without necessitating the killing of livestock (Yoshida 2004: 33)[1].

According to records from World War I, hunting as competition existed as a way to train youngsters. From childhood, Mongolian boys learned to ride horses and to hunt, and thus they gained skills in shooting arrows from a horse (The Kanto Army 1916: 161). Historically, there were also several other kinds of hunting competitions. For instance, during the Ching dynasty, aristocrats in Mongolia were called by the emperor to participate in an annual event (The Kanto Army 1916: 161). Areas designated for hunting were then distributed to the aristocrats by the Emperor. Each aristocrat competed to hunt the most animals. Kings from every country in Mongolia brought their subjects, and the king himself led the hunting (Tamai 1931: 125).

Another type was hunting in a league. All or some of the banners in a league united to go hunting. This style, however declined rapidly in popularity, and only a few banners continued the practice (The Kanto Army 1916: 161). Hunting of a whole banner, however, was conducted on an annual basis. Led by the chief of a banner, soldiers united to hunt.

Hunting by herding groups was a kind of practice for hunting with the whole banner and hunting led by the Emperor. Soldiers of a couple of villages joined together and hunted between three and six times per year. In addition, the men in families went hunting and competed with one another in a show of skill. Sometimes a couple of houses got together and had a competition. They rode on horses, took along some dogs, and used rifles and poles (The Kanto Army 1916: 161).

In general, Mongolian people hunt gazelles, hares, wild sheep, and prairie dogs. The social position of the winners of the Emperor's hunt is still unclear and requires further research. However, considering that people certainly made an intense effort to prepare for the Emperor's hunt by hunting in herding groups and as individuals, it is at least possible to guess the social importance of the Emperor's hunt. Thus, before the introduction of socialism, Mongolian people considered hunting skills to be as important as the skill required to ride horses. Moreover, these skills signified the capability of the men as warriors among the Mongolians. In other words, they thought that the ability to ride horses was a good quality for humans to have. In this sense, value is considered to be of sociological import in Graeber's theory.

On the other hand, looking at the targets of the hunt offers another perspective to the value of horses. Hunting offers a way to supplement protein for pastoralists without requiring them to kill their livestock, a pragmatic value. At the same time, pastoralists use the bones of wild animals for rituals (Yang 2006: 516). According to Konagaya (1994), Mongolian pastoralists consider wild animals to be sacred, and in the animal hierarchy, wild animals rank higher than livestock[2]. Using wild animals

[1] Horses were used to hunt other wild animals not from the same species. In comparison, generally speaking, northern reindeer herders use one animal species to hunt their own kind: using domestic reindeer for transport to hunt wild reindeer.

[2] I don't have any field data about wild animals, so this paper does not develop arguments about

as an offering, therefore, enhances the sacredness of rituals. An old manuscript about the Camel Fire Ritual says: "Wrap a rib of a white gazelle with a blue cloth and put it into fire. If you cannot get a bone of a white gazelle, you may use a rib of a goat or a rabbit" (Yang 2006: 516). A gazelle can be caught only by horseback hunting. Given that bones of the gazelle are seen as sacred, horses are construed as the agent that connects human beings to sacredness. In 2006, when hunting had already declined, the Camel Fire Ritual allowed the substitution of a rib of a cow or a rabbit for that of a gazelle, suggesting that an object of symbolic value possibly shifts over time.

VALUE OF HORSES AFTER SOCIALISM

Before socialism, the pastoralists used horses for transport; in contrast, nowadays the pastoralists in Mongolia mainly use trucks or motorbikes for transport. Although they make *kumis* throughout the summer, it is made for self-consumption, not for sale. Furthermore, being different from sheep or goats, castrated horses are not usually killed or sold for meat products. Consequently, the value of horses as merchandise in the economic sense has weakened over time. Despite this, many horses continue to be raised in Eastern Mongolia, so they must still retain some value.

Part of this value seems to lie in horse racing in Naadam, a traditional summer festival in Mongolia. There is a national Naadam and many local Naadams. People enjoy Mongolian sumo, archery, horse racing, and so on during this festival. Racehorses are of special interest to people in the Eastern part of Mongolia. In horse races, the horses run about 30 kilometers. Jockeys are children under the age of 4 or 5. For example, when I went to Suhbaatar Aimag, a mother who has two daughters said, "My elder daughter stayed away from horses, so she doesn't participate in horse races. I don't let her ride on horses now. My younger daughter likes horses very much, so she participated in horse races last time." Generally, when children get older, they retire from racing and begin to learn how to train horses.

The characteristics of the three Eastern prefectures of Sukhbaatar, Khentii and Dornod illustrate the vital role of horses in the area. As indicated on Map 2, the per capita number of horses is more than four. This region has long been famous among Mongolians for good horses, thanks to a predominantly flat environment which produces high quality grass. At the same time, cultural aspects are also important for producing good horses. The following interview, conducted in 2004 in Galshar village in Khentii prefecture, exemplifies how highly pastoralists appreciate the value of their horses: "Galshar have collected and raised good horses since the 1960s. As a result, Galshar has become famous for producing good horses. Now, the term 'horses from Galshar' is a sort of brand." Clearly, the pastoralists have a strong desire to choose horses of good bloodlines. Thus, both environmental and cultural factors are necessary for a horse-raising area to thrive.

Interviews with racehorse trainers, known as *oyachi*, also expand the understanding of the cultural meanings of horses. The *oyachi* use many methods to strengthen their horses to win races. Winning a horse race depends 50 percent on the horse's ability, 30 percent on training, and 20 percent on the ability of the jockeys (Nozawa

animal hierarchy any further. In the future, however, I intend to research this important topic.

1991: 82). Therefore, it is important to have a good eye for choosing good horses (Nozawa 1991: 82). Comments from an interview with a 66–year-old informant from the Khentii prefecture in 2004 show how eagerly people made an effort to get good horses 60 and 70 years earlier and how secretive the whole matter was:

> In the generation of my grandfathers, people traveled to Sukhbaatar and Dornod to look for horses which had a good blood line[3]. They took many days to get there and brought horses back to Khentii prefecture. They exchanged a good female horse with 70 ponies. My grandfathers and my uncles were talking about where to go to buy horses and so on. Conversations about horses were held secretly behind a closed door of their yurt (*ger*) lest other people hear. Thus it was impossible for me to sit next to them and listen to their talk.

Since then, however, the way to choose horses has changed as demonstrated in the following interview of a 68–year-old *oyachi* in 2004:

> Without a doubt, in my grandfather's generation, people possessed the skill and knowledge to choose horses. However, nowadays, people [here 'people' means *oyachi* in general, including the informant] cannot recognize good bloodlines of ponies. In other words, they do not have the skill to choose horses.

This suggests that the technique to choose horses has weakened. However, people still take good care to produce fast horses for Naadam.

> We are careful of the amount and kinds of grass horses eat lest they get too heavy or too thin. Management of weight is the most difficult part, and it is important to control their exercise and nutrition before Naadam. Running horses increases their breathing capacity, while allowing them to drink salty water from a fountain helps them to gain weight with fat.

As the interview implies, there are many special ways to train horses, and the techniques are so valuable as to be kept secret even among relatives. Horses trained in these ways participate in races in Naadam. The *oyachi* clearly remembered in which races his horses achieved good results. "Horses of my relatives won all the prizes in the 1984 Naadam," said the *oyachi*. "My horse won a prize in last year's race." If ordinary people are asked, "Who is a famous *oyachi*?" they can think of several names without hesitation. This suggests that famous *oyachi* are well known not only among colleagues but also among local people.

Furthermore, the winning horses themselves are famous and attract many kinds of people to them:

> A good horse of my own caught the eyes of a rich person in Ulan Bator who

[3] Sukhbaatar and Dornod are between 300 and 500 kilometers from Khentii prefecture.

> cheated us out of him later. This horse won the first prize in a national Naadam, which I saw on television. Recently, horses in Ulan Bator have been given steroids and nutrition supplements, and consequently, horse races in the national Naadam bear little resemblance to traditional races in which only natural strength of horses competed. The traditional essence of the races is in the local Naadams.

This account implies at least three things. First, buyers, who are generally affluent, are highly interested in good horses. Second, owners with racehorses in the national Naadam want to win, no matter what. Third, horse owners in pastoral regions take pride in training horses in the traditional ways, which do not rely on drugs or supplements.

Winning races in Naadam is extremely important. It brings owners celebrity and great honor. Politically and financially powerful people in urban areas pay attention to fast horses in the local Naadams and then buy them to achieve a victory in the national Naadam. Sometimes, they even cheat local people to get good horses.

Why is it so important to possess strong horses? Why do people persist in breeding strong horses? Cultural background seemingly plays a large role in such desire. In his 1992 book, *A Heart of Equestrian People,* Wanibuchi explains: "Mongolians have long lived their pastoral lives with horses. Their love for horses is much deeper than we can ever imagine. Horses are their pride as equestrian people. Horses are their peace" (Wanibuchi 1992: 26).

If people were to walk on foot—without horses—through the fields, they would likely be considered beggars. Horses have not only a pragmatic value but also symbolic features (Wanibuchi 1992: 26). The existence of horses exemplifies the Mongolian identity as horse-riding people.

According to Konagaya, there is a Mongolian saying that "…good horses, symbolize human capability" (2005: 222). Thus, people's determination to raise horses in the traditional way and their hatred for the use of growth-enhancing drugs may be seen as a show of pride in which Mongolians equate their skill for training horses in the traditional ways to their ability as pastoralists. Here the high symbolic value of horses is evident.

According to Graeber's theory, having skill to raise strong horses without drugs corresponds to sociological values. In addition, the value of possessing "strong horses" or "good horses" corresponds to values in a linguistic sense.

CONCLUSION

An examination of the animals, primarily the horse, in Mongolia reveals dynamism and changes in the various values of animals. Hunted wild animals, like gazelles, have pragmatic value as a source of supplemental protein for pastoralists and as food and products to be sold to people in Mongolia, China, and other countries. As hunting has declined of late, the pragmatic value of wild animals is consequently declining, too. As well as the pragmatic value, these animals also have a symbolic value, as their bones are used for rituals to signify sacredness. Because of the decline of hunting, pastoralists have recently begun to substitute bones of livestock for those

of hunted wild animals. Consequently, the symbolic value which wild animals hold is shifting to livestock. This tendency illustrates the possibility of positional change of a value from one kind of animals to another.

On the other hand, analysis of the functions of horses in Mongolia reveals another type of change of values. Before the introduction of socialism, horses were objects of trade as livestock for transport, and thus they had a significant pragmatic value. Due to the appearance of motorbikes and cars, however, this pragmatic value has declined. The milk of horses (*kumis*), which has long been consumed among pastoralists, has retained its pragmatic value. Horses also have symbolic value. Before, the ability to ride and hunt on horseback symbolized people's latent abilities as warriors. Currently, possession of strong horses symbolizes both the capability of their owners as pastoralists and the social power of affluent people. Thus, although horses do and did have symbolic value to signify human capability, the type of capability has changed over time. However, it is still unclear whether horses had value as a "symbol of human capability" in the era of socialism. There is the possibility, of course, that the symbolic value disappeared and was then re-constructed in the post-Socialist era.[4] Furthermore, horses have another symbolic value, which is to connect people to sacred wild animals. The symbolic value of horses is thus diverse.

Based on analysis of values of animals in Mongolia from the viewpoint of their functions, it is possible to make a closer evaluation of their values in relation to Graeber's systematic value theory: (1) values in the sociological sense; (2) value in the economic sense; and (3) value in this linguistic sense.

The current pastoralists gain protein mostly from their own livestock. In this respect, the pragmatic value can be considered to be applicable to value in the economic sense.

However, looking at the pragmatic value of horses for transport, value in the economic sense and values in the sociological sense coexist. Quoting Clyde Kluckhohn, Graeber distinguishes the economic sense of value from the sociological sense of values as the following: The former is the degree of the objects which are desired, and the latter is the degree of the objects which are desirable. Desirable, in this case, describes something which is not only desired but also ought to be desired in a culture (Greaber 2001: 2–4, 25–26). Horses for transport, which are objects that are desired as useful tools, are traded between pastoralists. Simultaneously, the horses are objects which are desirable in the sense that ideal pastoralists ought to be able to raise strong horses, ride them well, and possess them as their symbol. The latter value is so significant that even after the role of transport has declined, horses used in Naadam are still highly esteemed.

Furthermore, as the saying about the possession of a strong horse reminds us, the value of horses is also related to values in the linguistic sense". That is, in Mongolia, the notion of possessing good horses in describing a person has a "meaningful difference" from possessing other animals. The value of horses is a multilayered structure of the three senses of values with continuous change of its content over time.

In conclusion, the actual functions of animals in relation to human beings in Mon-

[4] Value of horses during the era of socialism offers rich potential for further research.

golia cannot be separated from the three senses of value of Graeber's theory. Since each category is intermingled and flexibly changeable, the actual condition of values from only one perspective of the three is inappropriate. The relationship between animals and human beings is explained more fully by the dynamism of various values which include the positional and internal change of their functions.

BIBLIOGRAPHY

Chinese People's Political and Consultative Conference（中国人民政治協商会議内蒙古自治区委員会文史資料委員会編）

1984 『旅蒙商大盛魁』（内蒙古文史資料 / 中国人民政治協商会議内蒙古自治区委員会文史資料研究委員会編 ; 第 12 輯）[Mongolian traveling merchants "Da Cheng Ku," (Documentation of Inner Mongolian Literature and History/ Chinese People's Political and Consultative Conference in Inner Mongolian Autonomous Region, the committee of documentation of literature and history (ed.) No,12)]. Hohhut: Inner Mongolian Literature and History Press.

Graeber, D.

2001 *Toward An Anthropological Theory of Value. The False Coin of Our Own Dreams.* New York: Palgrave Macmillan.

Harayama, A.（原山 煌）

1995 モンゴルの神話・伝説 [The Mythology and Folk Story of Mongolia]. Tokyo: Tohosyoten.

Humphrey, C. and Sneath, D.

1999 *The End of Nomadism?: Society, State and the Environment in Inner Asia*. Durham: Duke University Press.

Kler, J.

1941 Hunting Customs of the Ordos Mongols. In *Primitive Man*, 14 (3) (Jul., 1941), 38–48. Washington: The George Washington University Institute for Ethnographic Research.

Komiyama, H.（小宮山博）

2007 市場経済移行後のモンゴル国農牧業の変容 [Change in Mongolian Animal Husbandry and Crop Farming after Transition to Market Economy]. In *Eurasia kenkyu* 37, 34–39. Tokyo: Toyoshoten.

Konagaya, Y.（小長谷有紀）

1994 狩猟と遊牧をつなぐ動物の資源観 [Animals between Hunting and Pastoralism from the Viewpoint of Resources]. In *Koza chikyu ni ikiru (3) Shigen he no bunka tekio*, ed. K. Fukui, 69–92. Tokyo: Yuzankaku.

Kondo, T.（近藤富成）

1995 清代帰化城遠隔地交易路 [The Way of Long-Distance Trade through Guihua City in Qing Period]. In *Jinbun gakuho* 257, 51–87. Kyoto: Kyoto University, Research Institute for Humanities.

Lhagvasuren, B. and Milner-Gulland, E. J.

1997 The status and management of the Mongolian gazelle Procapra gutturosa population. In *Oryx*, 31 (2), 127–134. Cambridge: Fauna & Flora International.

Lu, M. and Liu, Y.（盧 明輝・劉 衍坤）

1995 旅蒙商－ 17 世紀至 20 世紀中原與蒙古地区的貿易関係 [Mongolian Traveling Merchants – The Relationship of Trade in the Central Plain and Mongolia from the 17th century to the 20th century–]. Beijing: Zhongguo Shangye Chubanshe.

Morinaga, Y.（森永由紀）

2008 モンゴル東部地域の気候 [The climate in the Eastern Mongolia]. In *Mongal yuboku shakai to uma bunka*, ed. K. Nagasawa and T. Ozaki, 28–42. Tokyo: Ninon keizai hyoronsya.

Nakamura, T.（中村知子）

2003 モンゴルにおける牧畜の多様性とその要因分析 [The analysis of the Pastoral diversity in

Mongolia]. Masters Thesis submitted to Kagoshima University.
Nozawa, N.（野沢延行）
1991 モンゴルの馬と遊牧民［The Horse and People in Mongolia］. Tokyo: Harasyobo.
Ortnast, B.（ボルジギン N・オルトナスト）
2003 モンゴルにおける種馬に関する儀礼をめぐって : 種馬に関するユルールを事例に［On Rituals of Studhorses in Mongolia : A Case of Irtigel (Oral Verse of Rituals) Concerning Studhorses］. In *Chiba daigaku Eurasia gengo bunka ronshu* 6, 1–18. Chiba: Chiba University, Chiba University Eurasian Society.
Owen, L.（オウエン・ラティモア）
1941–1942 「蒙古草原史の展開」［The expansion of the history of the Mongolian glassland area' Good Neighborhood Association of Mongolia 2nd］. In *Nairiku Asia dai1–2shu*, ed. Moko zenrin kyokai. Tokyo: Seikatsusya.
Tamai, D.（玉井大市）
1931 内外蒙古の横顔［Portfolio of Inner and Outer Mongolia］. Tokyo: Kaigaisha.
The Kanto Army（関東都督府陸軍部）
1916 東蒙古［The Eastern Mongolia］. Tokyo: Miyamotoburindo.
Yang, H.（楊 海英）
2006 「ラクダの火をまつる儀礼」から民族誌の政治性をよむ―ネイティブ人類学徒の曖昧な喪失の視点から［Reading Political Dimensions in to the "Camel Fire Ritual" in Mongolia –Ambiguous Loss and a Native Anthropologist］. In *Bulletin of the National Museum of Ethnology* 30(4), 493–532. Osaka: The National Museum of Ethnology.
Yoshida, J.（吉田順一）
2004 興安嶺南山地の経済構造―ハラトクチンの経済構造を手掛かりに―［Economic Structure in the Mountainous Region of the Southern Side of the Greater Hinggan Range (International Simposium on Mongol Studies)］. In *Hokuto Asia kenkyu* 7, 25–41. Shimane: The University of Shimane, Institute of Northeast Asian Research.
Zgusta, R.
1997 Some Recollections of a Gobi Woman (Social and Other Sciences). In *Journal of Osaka University of Foreign Studies*, 17, 311–321. Osaka: Osaka University of Foreign Studies.

9

‘Political’ animals of Sakha Yakutia

Anna Stammler-Gossmann

Arctic Centre, University of Lapland, Finland

ABSTRACT

The reindeer has since long held great symbolic importance for Sakha Yakutia as a region in the Northeast of Russia. Political developments of center-region relations, national movement and cultural revival in the last decades, have subordinated the symbol of the reindeer under that of the horse, which has become central for the region as a national symbol placed on the regional emblem. It is remarkable that in economic terms, both the reindeer and the horse play a very minor role in the region’s economy. In recent years, however, in political debates there has been a growing significance of special local breeds of cows and horses for the Sakha agriculture and as an identity marker. A fascinating example of this notable shift in animal symbols can be found in the region-building policies in Sakha Yakutia. This paper examines the political power of animals as symbols and their exchangeable nature in the process of forming a regional identity and in relations with the center. The research focuses on the questions of how animal symbols might vary in their political construction and deployment, the change over time of these symbols, and how they are related to systems of power, inequality and value-making. In doing so, I analyze the factors that contribute to the establishing of animal symbols, functions of animals’ symbolisms as political capital, and political implications of cultural symbols. Examining the nature and location of particular animal symbols in their political use can greatly contribute to research of multiple and many-layered meanings of human-animal relations.

Keywords: Political symbolism of animals, human-animal relations, centre-periphery relations, building of identity, Republic of Sakha (Yakutia)

INTRODUCTION

Like in all human societies, past and present, the Sakha[1] people have coexisted with animals of many species. The disintegration of the Soviet Union tremendously politicized the domestic animals of this region. Three animals of the Republic of Sakha (Yakutia) – the reindeer, the horse and the cow – have separately or in shifting alliances taken their prominent symbolic places in the forming of the region in the late Soviet, early post-Soviet periods and in current political developments. Reflecting the key trends of certain historical developments, these species, which the Sakha agro-pastoralist groups and indigenous peoples have had the closest links with,

[1] Sakha is a self-designation of the most northernmost Turkic-speaking ethnic group in the northeastern Russia. Yakut is the ethnonym in Russian.

have always had a significant presence in the societal dynamics of this northern region. However, they have never dominated the political scene as collective representatives as in the past two decades. Under the influence of the atheistic ideology of the Soviet age, these animals lost their previous spiritual value and were referred to in society mainly in the sense of a socio-cultural tradition. In the post-socialist period animal symbols have been infused with particular meaning in the regional politics of building identity and in the shaping of the interaction with the centre.

During the 1990s, Sakha Yakutia, like other ethnic entities, challenged the center using the chaos and centrifugal force created by the disintegration of the old hyper-centralized Soviet state. The tension between central and regional claims focused not only on practical issues of governance and finances, but also on the argument of defining sovereignty (Kempton1996; Mandelstam Balzer 1999; Sakwa 2005). At the beginning of the 1990s, Sakha Yakutia declared that its local laws supersede those imposed by Moscow and that it will retain all revenues generated by the use of its resources. These 'sub-national' sovereignty claims granted special privileges to some resource-rich, ethnic regions. The power balance between center and regions began to change with the establishment of the Federal Constitution (1993) and has since gradually shifted towards the central authorities. After the election of 2000, Putin set out to strengthen the 'vertical flow of power' and the era of special privileges for territorial entities was over (Sakwa 2002: 16).

The specific ethnic profile of the republic has always been a great source, out of which regional politics have been shaped. In the last Soviet census (1989), the Sakha comprised 33,4%, indigenous peoples 2,2% and ethnic Russians 50,3% of region's population. This proportion changed in the census of 2002 to 45,5%; 3,4% and 41,2% respectively. Other ethnic, non-native groups have often been commonly viewed by native residents as 'Russians'[2]. The Sakha, having their own administrative unit named after them, are classified as a so-called 'titular nation' (Stammler-Gossmann 2009a: 74). As in other ethnic republics, the idea of the exceptional value of small peripheral peoples within whole of the Russian Federation has been combined with the thoughts on civilizational commonalty between remote parts and the center (Humphrey 2002: 261–262). At the same time, the regional authorities, faced with ethnic diversity, have had little choice but to appeal to multiple constituents (Mandelstam Balzer 2004: 240).

In 1992, the horse was chosen as a symbol for the national emblem, a reproduction of a cliff-pictograph from the Lake Baikal area, referring to the southern roots of Sakha people[3]. Other suggested 'deviant' wild animals[4] as well as symbols related to

[2] I use the term 'Russians' referring to ethnic Russians and, consistent with Sakha perception, 'Russian speaking' residents referring to all other non-native groups migrated to the region in the past.

[3] Many authors who share the ideas of the southern origin of the Sakha presume that the Sakha had southern roots and migrated to the North in the wake of a territorial reorganisation in Asia caused by Genghis Khan's Empire.

[4] Amongst the projects for the contest for the Sakha national flag and emblem, announced by the Sakha parliament in 1992, was the white crane (*kytalyk, Grus leucogeraus*). It is said that seeing this sacred bird, which is registered in the International Red Book, brings good luck and a long life. Another popular 'deviant' wild animal of Sakha Yakutia, the sable, having been depicted in the regional emblem of the Tsarist era and carried in the claws of the 'Russian Empire's' eagle, has been outrightly refuse as an obviously imperial symbol. The exploitation of fur, especially the valuable

the environment or natural resources were not accepted (Saprykov 1995; Perfilev 2001; Andrianov 2009). The metaphoric, romanticized image of the crane or the 'imperial' significance of other wild animals did not have enough capacity to represent the variety of politically loaded messages on the specifics, the character and disposition of the society in question.

The horse on the national emblem became a central symbol of obtained sovereignty and gradually a source of excitement and revived or invented tradition. Placed on the regional emblem, the horse has subordinated the symbol of the reindeer, the most common symbol of the Soviet era associated with this northern region. Currently the cow has also turned into an animal that embodies the essence of the Sakha people and their identity. The cows as well as the horse are appearing in societal and political debates as particular unique breeds, namely the Sakha horse (*Equus caballus)*[5] and the Sakha cow (*Bos Taurus)*.

The attitudes towards particular breeds in the politics of the Republic of Sakha Yakutia, express themselves in different ways; first of all in heraldic activities and legal acts. An animal or group of animals may come to represent, in arbitrary fashion, a particular ethnic or social group, or maybe an entire region. Politically significant animals are recognizable from the displayed pieces in the shops and buildings, in museums and art exhibitions. Animal symbols give way to new forms based upon science, education, performance, media celebrity, images and taste.

Clarifying the political implication of cultural symbols, Cohen points out that a politically significant symbol is often overtly non-political (Cohen 1979: 87). This is not surprising; people frequently turn to animals for symbolic expression in 'naturalizing' social classifications and distinctions or 'humanizing' nature. The different properties ascribed to symbols as triggers of social mobilization in the studies of symbols – ambiguity-clarity, open-endedness, complexity of association – are connected with their dynamic quality (see Cohen 1974; Turner 1975).

A variety of studies have given a great deal of insight into the character of various symbolic relations between humans and animals related to religion, cultural ecology, animal metaphors (see Shanklin 1985; Mullin 1999), but still little is known how this interrelation operates in ideological and political processes. Even though the case of the 'sacred cow', generated more political and academic attention than by any other animal, still many open questions are subject to continuous debate (Copland 2005; Deryck 2006). Only a small body of empirical research focuses on evaluating the changing presence of animals in political articulation over time in modern society (Franklin 2006), or various symbolic relations between one animal and different societies (Lawrence 1985), groups (Miles 1997), different governments (Copland 2005), or gender (Pink 1997).

However, the research done on the cultural and political use of domestic animal symbols, tends to examine the varying nature of one specific symbol, focusing on matters of meaning and interpretation. At the same time, the shifting nature of animal symbols is still a field, where science can say very little about it (Haraway 1989;

sable pelt was the main aim of Russian Tsarist policies towards the Siberian native peoples. Iasak (a tax in Tsarist Russia) was collected mainly in sable furs.

[5] Often referred to by scientists as the 'true animal'.

Franklin 2006). There are many open questions left to reply, which can greatly contribute to our understanding of flexibility of human-animal boundaries. Why particular animals have been chosen as political agents and others have not? Why have some symbols been accepted or reinterpreted while others have not? What constitutes politically dynamic properties of individual animals and what is its interplay with others? We may also ask how different species fulfill the assigned role in the realization of political ends.

In Cohen's analysis on political symbolism, the less obviously political symbols are, the more efficaciously political they prove to be (Cohen 1979: 87). However, as Franklin states, based on the example of Australia's 'animal' nation, once an animal is charged with this presentational status, it means that every positive act towards it simultaneously endorses the nation or group that it represents (Franklin 2006:7). The balance between the proposed ambiguity of political symbols and their instrumental character could be examined in the context of still contested ideas about the relation of humanity to animality in political and economic imperatives.

Employing the famous dictum of Lévi-Strauss that animals are 'good to think with' (Lévi-Strauss 1963: 89) to the complex societies of the present, I add the dimension of 'good to act'. Derived from his idea, I consider the interplay between rational, material dimensions and values attributed to animals in the context of ideological and political pressure. I examine to which extent the economic value of animal species ('good to eat' perspective) offers conceptual support for political acting ('good to act' perspective)

The main thrust of this paper is to understand not only the instrumental value and interpretation of the animal symbol but also its exchangeable properties. In this context I focus specifically on two mentioned aspects of animal symbolism in the Republic of Sakha (Yakutia). I analyze the potential and the limits of 'neutral' political symbols of different species as well as the relation of their political value with their social and economic values in the society. Along these lines I try to link regional political fields to 'closed' local levels based in particular on my fieldwork studies in Sakha agropastralists communities of the Tatta District, thought to be one of the most famous agricultural and 'most Sakha' province.

'good to eat' and 'good to act'

The establishment of official regional symbolic began in the time of Peter the Great and remains an important channel for the central government to control the regions. The new political situation of the post-Soviet years has provided the regions with an opportunity to create their own official symbols. The introduction of new symbolic attributes was one of the first activities of the regional governments. Various national and social movements, political ideologies, religious and spiritual concepts in post-Soviet Sakha (Yakutia) have offered themselves to define and symbolize regional society, but none have been able to articulate a concrete political vision of regional elite and gain popular support. The symbol of change became the horse and its representational role was assigned on the republic emblem. Animals in general have been the most popular symbols in the regional symbolic of the post-Soviet Russia (Perfilev 2001: 330) Animals are also dominantly present in the symbolism of

regional districts in Sakha Yakutia (Rubtsov 2003; Andrianov 2006).

The animals that have accompanied the political fluctuations of the regionalization process have had a great social and economic significance for the Sakha cattle and horse breeders and indigenous reindeer herders. According to the census of 2002 35.7% of all regional residents live in rural area. Among them Sakha and indigenous peoples constitute with more than 60% (Pozolotin 2005:30, table 2) the majority of the rural population, for whom agriculture remains a vital part of their economy (Takakura 2003; Crate 2006; Granberg 2006; Maj 2009). In addition, the agricultural sector is politically influential since many of the officials currently in charge of the Republic of Sakha (Yakutia) have family ties to rural areas or have worked in the agricultural sector. The former President was a former head of the Ministry of Agriculture under the Soviet government. Domestic meat and milk products, potatoes and cabbage continue to make a significant proportion of the regional diet (Tichotsky 2000: 128; Crate 2006: 102–103). However, the appreciation of regional symbolization and its implied political use does not necessarily reflect the regional economic value of 'real life' animals.

The Republic of Sakha (Yakuia), the biggest administrative unit of the Russian Federation, is also the number one province for diamond mining. In 2002, in the structure of Gross Regional Product, agriculture together with hunting and forestry made up around 3.4%, whereas the extraction industry accounted for 45% (Rosstat 2002a). According to regional statistics, the production of meat dropped in the region drastically from 23,000 tons in 1990 to 1,100 tons in 2006; whole milk products from 142,000 tons to 35.8 tons (Rosstat 2002b). Since the collapse of collective state farms, cattle and horse breeding is practiced on the level of a cash economy with patterns of a subsistence economy (Crate 2006: 3). From the 1990s, reindeer livestock has reduced by a factor of ten within ten years (Novikov 2006: 81; Vinokurova & Boiakova 2009: 31).

Moreover, the portrayed natural world obviously contrasts with reality in the way that the particular local horse and cow breeds are considered to be facing extinction (Zakharov et al 1993; Popov et al. 2004). Many Sakha people have never seen neither a reindeer nor a Sakha cow. Only one overview published in a local newspaper by Sakha researchers, points out this fact: 'The Sakha who have never seen a Sakha cow' (Nikolaeva 2008), 'The branch-phantom: what is disturbing the reindeer herding?' (Vinokurova 2007).

Past and present regional development is heavily dependent on industrial mining, whereby the diamond industry plays a principal role in the economy (Gossmann 1997, Gossmann 1999, Tichotsky 2000). The majority of the region's inhabitants, Russian speaking residents, is involved in industrial development and constitute an absolute dominance of the population in southern industrial towns. The native residents are hardly involved in industrial mining (Kuzmina 1998: 64–65; Gossmann 1999: 193–195; Tichotsky 2000: 134–135). The ethnic structure of the republic also shows a disproportion in the distribution of power. While the Sakha have dominated in political positions, Russians have controlled economic power within the region (Gossmann 1996: 193–194; Mandelstam Balzer 2004: 239–240).

This remarkable ethnic division of labor, geographical diversity and distribution

of power lead to the situation, where the Russians are detached in an emotional sense from 'acting' animal symbols. In the same way, Sakha residents hardly have an emotional attachment to the diamond symbol, which is represented on the emblems of industrial *uluses* (regional districts) (Andrianov 2006). The sociological micro-survey from 1997 shows different orientations among Russian and Sakha residents towards their sense of belonging. While 37.7% of the Russians consider themselves as Russian citizens, only 1.3% of the Sakha share this feeling. The question 'I think I am citizen of Russia and Sakha (Yakutia), but more of Sakha (Yakutia)' was answered positively by 10.1% of Russians and 46.1% of Sakha residents (Gorokhova 2000: table 2).

Ethnic diversity in the region where there are two dominant groups (the Sakha and the Russian speaking group) is intertwined with that of political power, economic viability and interethnic relations. The fact that the legitimacy of the presence of a particular animal species in official regional symbolic can be challenged in its 'natural' base shows the activities of the Russian *obshchina* (association). In its appeal to President Putin in 2005 and to the Heraldic Council of the Russian Federation in 2007, the *obshchina* asked to return the Tsarist symbolisms for the region and for its capital, Yakutsk (Obrashchenie 2005; Shcherbakova 2007). The debates about regional symbols have been reinforced by the long process of establishing the emblem of the regional capital Yakutsk (Adrianov 2009).

Political sensitivities of the city's symbols are related to the fact that Yakutsk is the administrative capital and as such a symbolic 'common place' for a diverse society. The declaration of a regional 'Yakutiane' (residents of Yakutia) identity, introduced in 1990s, has been used in support of preserving the volatile unity of different ethnic groups within the region and of building a common regional identity. Under the first Sakha Yakutia President Nikolaev, many Sakha, as Mandelstam Balzer points it out, 'have been hoping to achieve an improved form of federalism, both at home and within Rossia' (Mandelstam Balzer 2004: 240). The moderate concept promoted by current president Styrov is stronger 'Moscow ties' oriented.

When particular animal categories reach the limits of their 'neutrality' and create distinctions between humans, another animal can take over the representational function. Among symbols to appear in recent years, which apply to the regional commonalities, is a new 'discovered' animal – the mammoth. From tourist advertisements to street posters and the President's speeches, this 'real/unreal' animal is often referred to as a symbol of the republic (Styrov 2007). The mammoth was chosen for the golden coin made in the republic as a symbol for the 360th anniversary of being within the Russia. The provided annotation has a historical introduction of incorporating Sakha (Yakutia) into the Russian state. Additionally, it describes the importance of the mammoth: 'With respect to the past of their land, the Sakha consider the mammoth as its symbol. Mammoths helped the ancient man to survive in this harsh permafrost climate'. However, according to the article in the local newspaper, in the Sakha mythology the mammoth has rather been perceived as an 'inert' animal that does not enquire for communication and esteem and could be associated with some alarming signs of death (Marasyukov 2005). In 2005, President Styrov adopted the decree 'On the special status of natural resources – ancient remains of mammoth

fauna and regulations of their turnover on the territory of Republic of Sakha (Yakutia)' (№ 2044, 30.03.2005).

'Nature', as represented by the actual biological, ideological or cultural traits of a particular animal, becomes in this case transformed into a construct that does not reflect any of the empirical reality, historical or religious values concerning that animal but involves much embellishment. Currently, it is beginning to occupy the stage held by 'environment' referring to the commonalities of living in cold conditions. The non-ethnic dimension of the mammoth symbol, the absence of any political bounds and its attachment to the territorial characteristics of a place has a certain potential to tie all of the residents to the region. On the other hand with its rather pro-Russian 'filling', the mammoth symbol can exceed its 'moderating' function. The new 'deviant' specie appears on the regional scene in a period of intensive re-centralization when the word 'sovereignty' is literally abolished from the text of the constitution of the republic. The gratitude the mammoth deserves for elevating a sense of identification and providing power for regional commonality efforts is, at the moment, not competing with the power of domestic animals that still foster the human feelings and continue to allow native residents to stick to their real or perceived bonds.

The next period of shifting negotiations about the degree of sovereignty between the center and the republic seems to be more or less completed with the final changes in the regional constitution. However, as Sakha researcher and former parliament deputy Vinokurova writes, 'after years of sovereignty consolidation of the Sakha titular nation has not happened'. In her account, the Sakha society is split into local spatial, kinship and social ties (Vinokurova 2006: 121). In the absence of a unifying national identity in Russia, which was formerly occupied by the ideological construct of a 'single united Soviet people' (*edinyi sovetskii narod*), the ethnic entities of Russia try to fill the gap by articulating in ethnic categories. Lack of national political symbols remains a point of confusion in Russian society that creates social and political instability and leaves the state-regions relations a high balancing act. Under these conditions the 'acting' animals of Sakha Yakutia continue to construct political realities, codify power relations and influence how people act towards them. Serving different purposes within the last two decades and producing limits of their political use, in effect animal categories remain more neutral than other 'acting' symbols and reinforce human morality by giving it a 'natural' basis.

'SOVIET' REINDEER

Reindeer herding is practiced only by a small number of indigenous groups of the region, who constitute around 3.5% of the regional population. The number of reindeer decreased massively after the collapse of the Soviet plan economy (see above) and today less than 2,000 people are registered as reindeer herders (Vinokurova 2007). Only a very small part of northern Sakha is involved in reindeer herding. As mentioned above, the economy of rural Sakha is based on horse and cattle husbandry. Nonetheless, the reindeer has long held a surprisingly great symbolic importance for Sakha Yakutia as a northern region, especially during the Soviet period. The Sakha people have been sharing Soviet images and symbols related to

the reindeer with legally recognized so-called 'small numbered indigenous peoples of the region' (Even, Evenk, Yukagir, Dolgan, Chukchi).

Fig. 1. A souvenir plate depicting the reindeer as a symbol of Sakha Yakutia (photo: Stammler-Gossmann)

De-sacralized by politics and science, the reindeer became a main ideological symbol of how the northern republic manifested achievements of the Soviet national policy. Soviet reindeer herding in Sakha Yakutia belonged to the most successful in country and reached its peak economic performance with a number of 380,000 animals at the beginning of the 1980s (Vinokurova 2007). The showcase reindeer herders' village Topolinoe was good evidence of 'the march of indigenous people towards the bright era of communism'. As in the Tsarist time, the Soviet government was deeply wedded to the 'civilizing mission' and to the idea of getting the locals up to the an equal level of societal development as that of the dominant group, 'bypassing thousands of years', straight from the 'stone age to socialism' (Stammler-Gossmann 2009a: 82). The first foreign researchers on reindeer herding in the Soviet Union were recommended to go to the Topolinoe settlement for the field work and to allow them to be convinced of the successful state policy towards indigenous peoples (personal conversation).

As a powerful ideological construction, the 'Soviet' reindeer replaced the economic and spiritual values of animal. Simultaneously, ambiguous boundaries between indigenous and non-indigenous spheres within the republic have caused an ambivalent ideological and societal meaning towards this symbol. On the one hand, the Sakha people are not accepted as an indigenous group within the Russian legislation (Stammler-Gossmann 2009b: 33–35), on the other hand, the expression of an indigenous identity in terms of 'being rooted' has been a rather natural concept for the Sakha people. Both the titular nation and the indigenous groups are seen as 'indigenous' in the sense of time and space; having been inhabitants of the region at the time of the arrival of Russian settlers in the 17th century. (Stammler-Gossmann 2009a).

Referring to the reindeer as a symbol of a flexibly expressed indigenous identity, the Sakha have shown a remarkable ambivalence towards the concept of shared 'indigenousness', on the one hand being its 'creators and users' and on the other hand keeping a 'proud distance' to indigenous peoples. As Rethman points out, the political culture of the Soviet Union, the recognition of Russia's non-Russian constituents was situated at the threshold between negation and affirmation, between the denial of 'culture' as a site of difference and its avowal as folkloric aesthetization (Rethman 2004: 268). Accepting the reindeer as a regional symbol, the Sakha, at the same time, have rejected evolutionary stereotypes of 'backwardness' associated with

reindeer herding. This discrepancy between avowing the Sakha to the reindeer symbol and its 'practical' negation was prevailed in the regional politics of performing tradition during the Soviet epoch.

The loss of its ideological basis after the fall of the Soviet Union diminished the political significance of the reindeer symbol and revealed its 'material' features based on economic realities and marginalized attributes. The republic of Sakha Yakutia, a region hardly known even by many inhabitants of the Soviet Union, has become one of the most active actors in the process of regionalization (Kempton 1996; Gossmann 1997; Mandelstam Balzer 1999). Political aims of establishing relations with the federal center and increased ethnic priorities that arose by the end of the 1980s and in the 1990s subordinated the reindeer symbol in its role of representing the northern republic. At the same time, the symbol did not completely disappear from the political scene and was not fully denied as a marker of regional identity. Its ideological function was transformed into the 'therapeutic' one, making it an integral part of new political concepts.

The introduction and intensive promotion of the concept of a 'circumpolar civilization' in the 1990s has effectively served Sakha Yakutia's regional goals in receiving a new quality of standing within Russia. The circumpolar concept was very useful to Sakha in providing a channel into a global Arctic community and in building international alliances, bypassing Moscow (Stammler-Gossmann 2006). From an emotional point of view, the 'circumpolarity' or rather its 'civilization' aspect has been important in overcoming the inherited Soviet complex of inferiority. The northern concept of spatiality has effectively demanded its articulation under the banner of indigenous cultural and political references. The affiliation of the Sakha people with the reindeer, through the flexible use of 'indigenousness', has been a supportive component of these circumpolar activities.

In spite of its lost significance that originated from Soviet stereotypes, the association of the Sakha people with reindeer and reindeer herding still remains an external as well as an internal symbolic constituent of regional representation (Sidorov 2006; Vinokurova 2007). In 2007, Sakha traditional sport jumping (*ystanga*) was included into the program of the federal cup in athletic sport. A *Russian Reporter* describing *ystanga* wrote: 'The reindeer that has gifted us this kind of sport is the main animal of the Sakha people and the base of their economy. It is not possible to survive in the North without the reindeer' (Lytkin & Levchenko 2007).

The connection to the reindeer in the sense of belonging to the North still has its 'uniting' feature. Different to Russian speaking residents of the republic, who identify themselves as 'Siberians' (*sibiriaki*), none of Sakha and indigenous inhabitants uses this definition. They clearly define themselves as northerners (*severiane*). The ethnic division of labor in the republic, whereby indigenous reindeer herders and the Sakha people are hardly involved in industrial development and mostly live in rural areas, also contributes to the fact that the reindeer symbol has been always accepted by the Sakha. The souvenir shops in Sakha Yakutia are still filled with items representing the republic using the reindeer image. A 'reindeer' dance, as in the Soviet Union, is an obligatory part of Sakha dance groups' programs and any official dance performance, where the region is to be represented.

Fig. 2. Performing a reindeer dance (photo: Stammler-Gossmann)

Conversely to seeing the reindeer in terms of the codified Soviet ideological meaning, a state of backwardness, many Sakha people have turned the symbol into a positively perceived. Some people may explain the 'spatial' value of reindeer for the Sakha as an amplifying indicator that emphasizes the specifics and beauty of their land and justifies a particular spiritual wealth of northerners (personal conversation). The reindeer is also a typical character in northern residents' jokes with which they provoke non-northerners: 'We in the North, live in the chums and go to our offices by reindeer sledges; bears are our domesticated animals and diamonds our toys'. These kind of provocative jokes are spread throughout the North and can be considered as a constituent part of local folklore (Razumova 2004), which distinguishes the northerners from the image that poorly educated and poorly informed non-northerners have of them.

Simultaneously, many Sakha people may have some prejudices towards reindeer. For example, reindeer meat is not very popular among the Sakha because 'it is too dark'. Urban Sakha may be suspicious about the quality of reindeer meat offered in shops or at the market, as it 'arrived from the North and possibly was not stored properly' (personal conversation 2008). On the contrary, for indigenous reindeer herders, the smell of the cows can be perceived as very penetrating: 'When Even girls had to work at cow farms during the Soviet era, parents did not allowed them to bring their work clothes inside the house because of the smell', I was informed by a local who was referring to the different significances of different animals in the republic (personal conversation 2008).

Today, the ambiguous meaning of the 'post-Soviet' reindeer and its prevailing marginal image cannot compete with its previous 'socialist' moral filling. The strong attachment of the circumpolar idea to indigenous peoples turned out to be a potentially impeding factor for its regional significance. The dominance of its indigenous aspect has kept the non-indigenous majority rather indifferent. Some voices wanting to bring the recognition of the Sakha as indigenous people to a federal level did not have the support in the politicized atmosphere of the early 1990s. In economic terms, it has not reached the proposed financial value (Stammler-Gossmann 2006) and the 'northernness' of the Sakha with its association with the reindeer symbol has gone to a rather 'hibernating' state.

The loss or abandoning of the wide range of symbols composed on an ideological basis has become especially pressing at the regional level in the ethnic entities of the Russian Federation. The regional politics of the ethnically defined republics have been challenged by a shift from marginalization to their new role within the center-

periphery relationship, which has massively increased awareness of their repressed ethnic identity as well as interethnic sensitivities. The tremendous importance of political symbols has not only been a way to mark out regional particulars for all regions in the Russian Federation, but a way to express their sovereign claims and define their position in relation to the center. The new symbols appeared in regional legislation as official 'state' and 'national' attributes of the republics.

'historical' horse

The new republic required a clear and unambiguously different representation in order to distinguish it from all other regions and strengthen its position on the political map. While the reindeer symbol has been strongly influenced by Soviet national politics and stereotypes, which reduced minorities to exotic ethnographic groups, the horse symbol assumed its particular prominence on the wave of the perestroika. After declaring its sovereignty within Russia, the former Yakut Autonomous Soviet Socialist Republic changed not only its name by putting the de-Russified name of Sakha as the official denomination, but also placed the horse on the new established national emblem of the republic. Having emerged on the national emblem of Sakha Yakutia in 1992, the horse symbol has revived the southern strands of the Sakha's origin, who supposedly traced their roots back to the time before the migration of the Sakha to the North, following the collapse of the Mongol Empire.

With the new animal symbol, political orientations have moved to opposite spatial directions. Instead of northern references, parts the Eurasian concept, particularly the idea of Genghis Khan Empire, became a relevant historical template for new center-periphery dimensions and awakened ethnic awareness amongst the Sakha people. The 'Eurasianism' itself, in its spiritual and religious context has offered, at this time, fewer possibilities for this northern region. Economically, the contemporary state of Mongolia has also been much less attractive than Arctic countries. The power of the southern concept has been mostly in its historical importance: it has offered a possibility to be connected to the big events of world history. The 'invented tradition' has fulfilled an important gap for many ethnic groups within historical Russian context. An attachment to the world of Genghis Khan has been evidence proof of historical continuity for non-Russian people, who were supposed to be 'stateless' and 'unhistorical' people outside of Russian and Soviet history.

The statements of southern belonging go to arguments of existing forms and attributes of statehood of the Sakha people before they came to the North. The symbol of the horse cultivating these traits became a more 'acting' political power than the reindeer, which is associated with the not very clearly defined concept of circumpolarity. From the official introduction onwards, the popularity of the horse increased rapidly. The economic importance of Asian connections in Russia and the growing potential of the region, with the ongoing construction of the East-Siberian pipeline, act to support for political agenda.

Historically, the horse was always a central element of Sakha life (Gabyshev 1966; Bychkova Jordan & Jordan Bychkov 2001; Maj 2009). In the 1860s, the politically exiled researcher Khudiakov wrote: 'It will be no overstatement to say that the Sakha themselves have so much of horse blood as any Sakha horse' (Khudiakov 1969: 231).

The culture of cattle breeding was forced under Russian influence and the number of horses declined from the 19th century (Seroshevski 1993: 250–255). Following the economic and social transformations of the Soviet periods such as the collectivization during the 1920s and 1930s, the value of horse breeding further lost its economic significance to the advantage of cattle breeding. Horse breeding, similarly to reindeer herding, is economically irrelevant for the overall region and only a minority of rural areas practices horse breeding. Although most rural, private households possess this animal, keeping the horse is almost entirely for subsistence purposes. The highly appreciated horse meat and *kumys* (fermented mare's milk) remain a celebrity's diet.

Fig. 3. 'Preserving tradition' – an advertisement for meat rissoles (photo: Stammler-Gossmann)

However, economic factors do not play a role in the regional symbolic power of the horse. As Maj argues, the loss of the horse's utilitarian significance during the Soviet era even intensified its symbolic need (Maj 2009: 69). Symbolic attributes of the horse cult survived under the atheistic Soviet regime. The variety of horse related events and symbols (*ysyakh*, main ethnic summer celebration or horse races), even though in moderate format, were important elements in keeping ethnic ties alive within the common ideological framework of a 'united Soviet people '.

The significance of the horse for the Sakha people is manifested in several statements of Sakha officials (Stepanov 2006), research arguments (Vinikurova 1994; Romanova 1994; Tyrylgin 2000; Novikov & Pudov 2005) and personal interpretations. Undoubtedly, the horse was and is a most prized domestic animal. However, it has gained such significant emotional expression and political dimensions for the first time in the Sakha society. Restoration of historical events, epitomes related to Genghis Khan's history has found enthusiastic support within society and its expression in popular culture. Several events related to the 'historical' horse (conferences, festivals, theater and sport performances, horse races, exhibitions, commercial advertisements) massively entered the academic and cultural sphere as well as every day life.

The horse can be found not only on official blanks, as logo of some enterprises or shops, but also on beer bottles. Horsemen from the heroic past, decorating a huge sign-plate in Yakutsk, seen during my fieldwork in 2009, were an advertisement for the production of the local poultry factory. The question of historical relevance is rather secondary. Even the critical audience of a film about Genghis Khan, made by a Sakha filmmaker and screened in 2009, has mainly seen the historical links as positive (personal conversation 2009). Symbols' use within ethnic units has been seen in Moscow as a manifestation of national particulars, the significance of the 'titular'

group and the level of separatism (Perfiliev 2001: 335). Indeed, with its 'historical' horse', Sakha Yakutia has become one of the most active actors in the Russian political scene and frequently figured in Russian media as a region with separatist tendencies (Vertiachikh et al 2003; Sokolov-Mitrich 2007).

Once emerged as an official national symbol and introduced in the regional legislation as an element of the 'state emblem', the horse provided a channel for the passing of legal and political acts. The importance of a symbolic form for the region was institutionalized not only in official national attributes of the region, but also in the 2002 introduction of the Heraldic Council to the president of Sakha Yakutia. The Council has been particularly concerned with establishing and registering the symbols of regional districts, where the horse and reindeer are dominantly present (Andrianov 2006). During the Soviet period, activities related to horses, such as *ysyakh*, races, and symbolic manifestations of Sakha's horse-related identity were marginalized. The opposite has been happening for the past decades, when such horse-related events gained a lot of attention and support by the republican government.

In 1991, the *ysyakh,* Sakha traditional summer festival, gained state status and became a national holiday (Nazarov 1994). The horse race is experiencing a significant revival. During my visit to a horse race in the regional capital in 2008, the head of the Sakha government established an award of 1 million rubles. The year 2002 was declared as the year of the Sakha horse (Yakutia 2001). The acceptance of the Sakha heroic epos '*Olonkho*', where the mythological qualities of the horse take a place of honor, by UNESCO as a 'Masterpiece of Oral and Intangible Cultural Heritage' in 2005 became a supportive event for the new animal discourse.

One of the important questions in human-animal relations is not only the way animals come to represent things other than themselves, but also the way this influences how people act towards them. Once the political elite was persuaded that a positive human outcome could be established by supporting the existing practice with animals, other legal regulations were introduced. In the perestroika time, Russian state regulations on the genetic protection and recognition of a local horse breed as a particular Sakha horse were adopted (N 680 07.09.1985; N 871, 01.10.1987). It was reinforced by adopted regional Laws 'On selective breeding in animal husbandry' (N 1484–XII, 19.05.1993), 'On horse husbandry' (Z N55–II, 28.12.1998); and the Law 'On *kumys* production' (64 Z N 465–II, 17.10.2002). Selective breeding was included into the list of national priority programs (Stepanov 2006). Finally, large efforts towards separate economic sectors in agriculture were consolidated for the first time, in the 'Program on socio-economic rural development for 2002–2006' (Decree № 435, 29.08.2002). In 2006, the regional capital Yakutsk hosted the first Congress of horse breeders, where the establishment of a World Horse Breeders Association was suggested.

Activities related to horses have also determined a new interpretation of the animal in practice among rural as well among urban Sakha. The Minister of agriculture encouraged urban residents in 2007 to become horse owners through leasing one and through memberships in herders' cooperatives (Rostovtsev 2007). Today, the horse is treated not only as an agent with motives, values and morals, but it also

delivers to the state with its human-animal interaction, what Tapper calls the 'implicit denying of differences between animals and people' (Tapper 1994: 51).

While attending a horse race in 2008, I experienced how individuals can attach themselves emotionally to the constructed symbol. The first day of the race was reserved for non-local breeds with the runway capped at 800 meters. On the second day, there was the race of local Sakha horses with a runway of 10 km. Especially, many female viewers were amazed at the patience and endurance of these small horses: 'Poor thing, they are just amazing, you cannot compare them with the non-local horse breed, they are like we, Sakha people'. Some kind of personification of animals can also be seen in the way Sakha people consider the horse, like themselves to also be a victim of Soviet economic policy (Maj 2009: 72).

Fig. 4. 'My homeland – Sakha', a street advert in Yakutsk (photo: Stammler-Gossmann)

The discovered, revived or invented attributes of the animal such as its healing power, contribute to this psychological proximity. Many urban residents of rural origin have recently become 'absentee' horse owners (Takakura 2003). The practice of having horses kept in the village by professional horse breeders for the consumption of the horses' meat has become more popular. According to the rapidly increasing popularity of the horse, the cost of horse meat in the past decade has increased heavily as well. Claims about healing properties and the high quality of Sakha horses' 'marble' meat are justified by research, present in mass media, amongst individuals and there are stories about Japanese people purchasing it. In one of these stories, my dialog partner mentioned that the quality of the Sakha meat in Japan decreased because of the lack of the homeland cold and grass.

Among local domestic animals, the horse illustrates especially well the symbolic power that it has been endowed within Sakha society. History has served as a common symbolic corpus from which the symbol of the horse was extracted. It has since been used as a symbol for the 'state-in-state' sovereignty and revived ethnic self-confidence. At the same time the horse symbol has a very exclusive nature. Justifying exclusively Sakha-own historical rights it leaves indigenous and Russian speaking members of the regional community detached from this concept.

'aboriginal' cow

During my fieldwork (in June-July 2009), every newspaper debated the question of the end of the long term process that meant to bring the regional Constitution in line with the Federal one (Egorov 2009; Kryukov 2009). The process of changing this main document of the Constitution of the republic, which was adopted (1992) before the Federal Constitution (1993), had already started in 1994. Since then, the Constitu-

tion has been revised several times in order to bring it in a line with Russian federal requirements. Nevertheless, together with a few other republics, Sakha Yakutia has angered the center by keeping the word 'sovereignty' in its Constitution. On the session of the 17th June 2009, the regional Parliament finally supported the draft of a law on the revision of the regional Constitution. Two particular points of the draft were at the center of the republic's attention: according to the draft, the word 'sovereign' should be removed from the Constitution. Additionally, a new statement about the region's 'voluntary entry into the Russian state in the 17th century should also be added to the historical part of the preamble (692–Z N 275–IV, 17.06.2009).

With the change of the Russian presidency in 1999/2000, a new dynamism appeared, driving a centralization process, which had already started earlier. It considerably changed the balance of center-periphery relations, due to the recent administrative merging of regional units, centralized control over resources and changes in regional Constitutions. Sakha Yakutia lost most of its sovereignty rights and privileges gained in the 'sovereign' phase, too. The new trend observed in this northern province can be defined by three general directions on the regional, political agenda: an intensive reassurance of tight relations with Moscow, a growing awareness towards keeping interethnic viability of the region and a maintaining of ethnic identity.

The inspiring spiritual value of the horse symbol currently becomes too vague in fulfilling these political needs. After the euphoria of the 1990s, the earthbound cow[6] seems a better fit to the new situation. Although it is hard to imagine that the cow can replace the horse in its attributive symbolic, this specie offers an opportunity to participate in the political life of the republic in a more moderate form and infuse an existential meaning into the center's managed regionalism. The differences between two animals do not necessary have to be transformed into their oppositions.

The representation of the cow is mobilized as another option in support of the same discourse of rural life, nature and certain political objectives, but without the strong excluding potential of the horse symbol. It is rather about forming the alliance of the horse and the cow in the process of adjusting political ideas in the fear of being marginalized by the Russian Federal center. The symbol of the cow turns the challenging issues of autonomy level inwards towards one's own roots, downplaying some sensitive aspects. The tendency in representing the cow as an animal that embodies the essence of Sakha culture does not replace the presence of the horse in political symbolism. Instead it makes the cow symbol more competitive on the regional level and more tangible as a political symbol.

Following Firth, symbols are 'instruments of expression, of communication, of knowledge and of control' (Firth 1973: 77). If we apply it to these particular animals, then the horse has been more of an instrument of control in regional politics, while the cow is more of an instrument of expression and knowledge in serving the same goals. The cow, in this function, provides even more familiarity in its relations with humans. The disappearing of Soviet factory farming led, at the same time, to an

[6] The term 'cow' is commonly used in politics as well as in society instead of the collective plural form 'cattle' (in Sakha and in Russian language), indicating the economic and cultural importance of milk production for the Sakha people.

increased proximity of human-animal interactions within individual households and also moved them from a more impersonal to a personal sphere.

Fig. 5. A Sakha cow in the regional museum of Yakutsk (photo Stammler-Gossmann)

On the way to deliver milk to the local processing plant, my host family in Tatta told me about the low fat milk from the cows of their neighbor. Some people suggested to him for a long time to slaughter them, because the milk prices have been based on the fat content. His response has always been the same: he cannot do it 'because they are *his* cows' emphasizing his intimate relation to the animals. The cow is seen as less mobile than the horse and as an animal demanding more work. On the other hand, a horse independently grazing on far wild pastures is also regarded as demanding hard work, but less tedious than the cow. Many people in Tatta villages have drastically reduced their milk consumption in the need for cash and sell almost their entire milk production to the processing plant in the summer time, or they sell it frozen in the administrative center in the winter. However, the significance of *yryng aas* ('white food', milk products) remains essential, while meat demand can be diversified by consuming more fish or wild animals.

Through its closeness to the people, the cow symbol provides them an opportunity to participate in what it symbolizes. Many people remember the shift from local cow breeds to the Kholmogor and Simmental breeds in the name of productivity, following a government Decree from 1932 – it is part of their personal histories. The amazing, undemanding abilities of the Sakha cow are in accordance with self images and reinforce intimate human-animal ties. Certain productive capacities like the 'marble' meat and the high fat content of milk are linked according to a Sakha genetics expert to traditional diet: 'The traditional diet should be in 'genetic' memory of the people. Before the real Sakha cow, the *Bos Taurus* was slaughtered in 1950s, the Sakha people had a second highest life expectancy rate. Currently, we are somewhere on the end of the rate' (personal conversation 2008).

In addressing an animal the Sakha may use the same adjective '*barakhsan'* as for a human, a combination of the word 'dear' and some compassion. Sakha cattle are characterized by smaller size, lower milk and meat production and the smaller udder that is not well suited for mechanical milking. This was the reason of the Soviet force mixing the Sakha breed with European cattle. The history of marginalizing animals and humans can be seen along the same time (Vinokurova 1994: 34–35; Kulakovskii-Diengkir 2008; Nikolaeva 2008). Simultaneously, the use of the term *barakhsan* applies to the unique ability of the Sakha cattle to adapt to cold winter temperatures of up to minus 50, the quality of the milk (the high fat content) and the great taste of the meat (Popov et al 2004; Neustroev 2006). The exceptional, adaptive

capacity of Sakha cows may symbolize in a more personalized way, the unique and creative talent of Sakha cow breeders.

The Sakha cow became an object in the regional museum and even arrived in S-Petersburg's zoo. Images of *alaas* (fertile meadows for grazing sites and hay grounds), the part of personal identities, are increasingly visualized in museums, theater performances and art. Another outcome of supported ruralism in regional politics is some kind of 'back-to-the roots' movement among Sakha authorities, within some social frame. It was first started by President Nikolaev, who initiated the construction of certain social objects in his home villages. Nowadays regional politicians may promote their villages of origin by investing state money in the social sphere. A special prize from an 'urbanized' governmental person during the *ysyakh* summer festivities in his or her rural home place is one of the most popular actions among politicians.

The unique and creative qualities of particular local breeds are recognized at governmental level and find their support in the regional subsidies program (Stepanov et al 2007: 41–42). In 2001, the Parliament of the republic adopted the Law 'On the protection and use of the gene pool of Sakha livestock' (Z N 291–II, 07.06.2001). In the following years the 'Decree on state support for the gene pool of Sakha livestock' (№245, 24.04.2003) and the 'Decree on establishing state institutions for the preservation of the gene pool of Sakha livestock' (№630, 21.12.2004) were introduced. The legal recognition of cultural values of the Sakha cow and horse contributes to the shaping of more 'local' features of animals, which are authentically inherent for the residents or what is perceived as inherent.

Like the horse symbol, the cow symbolizes its historical traces. At the same time, the cow symbol changes the focus of spatial references and emphasizes its 'autochthonous' property. Rethinking the role of the Sakha cow goes along more confident lines than roots going back to 'Genghis Khan'. It is mainly considered in the context of debates on the ethno-genesis of Sakha. The historical origin of the Sakha people, who speak a Turkic language while also having Mongolian and other cultural substrates, has always been one of the most exciting and contested issues in regional studies. In the 1990s, this previously purely academic discussion became highly politicized. Defenders of the 'autochthon' origin of the Sakha people consider historical evidence based not only on linguistic or genetic components, but also on the local origin of pastoralism in the area. According to the proponents of this hypothesis, cow breeding was already present before the arrival of southern groups of Sakha (Nikolaev-Somogotto 2007; Petrova 2008).

The topic is discussed not only amongst historians, archaeologists, linguists and folklorists, but also circulates in political and public debates on issues of first occupancy of the territory, cultural rights and cultural distinctness (Stammler-Gossmann 2009b: 38–39). Research results from molecular-genetic, medical and molecular studies are also put to public attention (Fefelova 1990; Pakendorf 2006; Tayurskii 2007). However, the historical discourse of discussion finds its consensus. The currently prevailing perspectives on the origin of Sakha among experts on southern 'migration' as well as 'autochthon' theories, is the view that Sakha as an ethnic group evolved completely in the area of the middle Lena river (Gogolev 2005).

The new prestige of animals and their use as cultural symbols enables Sakha to articulate cultural distinctiveness and support cultural practices in a form, where ethnicity is less visible and oriented towards defending rural economies. At the same time, animal symbolism provides a supportive potential in economic and political context. Proponents of the 'Eurasia' movement raise the question that cow and horse breeding of the Sakha should be regarded as a traditional economy that requires the same state support in traditional land use as for indigenous peoples. (Egorov et al 2004).

In the current political atmosphere in Russia, animal symbolism seems to be the most productive 'tool' in a situation, when regional authorities are torn between promoting regional identity for all residents of Sakha Yakutia and sensitivities towards ethnic identity. The appearance of the cow as a symbolic animal signifies the process of moving away from symbolic ambiguity and acquires a more existentialist meaning. However, the cow symbol has limitations in its capacity for the entire region. Whilst maintaining a sense of Sakha identity and appealing in its rural nature more than the horse to indigenous groups and rural Russians, the cow symbol has nevertheless a weak attachment to urban Russian majority. The position of the symbol is not a permanent or unchangeable state of affairs as the previous developments in this northern region showed. The common ground is continually contested and a new animal symbol, the mammoth, is already in vision.

CONCLUSION

The symbols of animals that prominently act in the political landscape can display extreme flexibility as was shown on the example of the remote northern province in Russia. The analysis has proven that they are dynamic entities and that they can fluctuate from order to disorder or back to order again. As political symbols, animals may become detached from the original experiences that had produced them or they may re-emerge in new interpretations. The process of symbolizing species may demonstrate, as in the case of Sakha Yakutia, their very 'situate' character and reflect different phases of political negotiations with the center and the forming of identities. According to the situation, the animal symbols may also serve different goals of regional power. They reflect particularities or cross-cut each other and complement their meaning. Animal symbolism reveals a potential to constitute commonalities and has a unifying power in designing regional politics but may also tend to a greater diversification of the regional community and lose their unifying value.

As 'acting' symbols, animals of Sakha Yakutia confirm the thesis of being 'a center of immanent, self-generating or creative power' (Ingold 1994:2) and can display at the same time not only certain kinds of relationships among humans (Ingold 1980), but also state-region interactions. In their exchangeable nature, 'political' animals have a significant capital for adjustment strategies in a society, which undergoes societal and economic changes. Animals that render the idea of a post-Soviet northern region are not only domestic but distinctively native. As in other cases (Franklin 2006), the nativity of animals is applied to reject a previous marginalized regional status. The introduction of 'foreign' animals could be associated with a marginalized status of native animals and as endangering a group's identity. From the example of

Sakha Yakutia we see that animal politicization is a process, which may run along the lines of 'inclusion and exclusion' not only within society, but among animals as well.

The applied 'good to act' perspective could be also understood in terms of double movements in the political symbolism of animals. Particular animals become 'good to act' because of their particular significance as 'good to think'. At the same time, the shifting use of the animals and their relative symbolic importance has repercussions on the social and economic significance of 'real' animals. The appearance of animals as political symbols has caused remarkable cultural revival activities towards particular species as well as demand for policies of protection. In this sense animal symbols can be seen as transmitters and transformers of a society.

The ways of using and classifying them shows that the economic significance of animals in Sakha Yakutia plays a minor role in their political use in the region's building process. Political symbols are not necessarily connected to the material reality and are often the result of constructed meanings. Simultaneously, they are accompanied by the significance of 'real' animal essence that is, for example, made up of actual biological or behavioral traits of particular animals, or influenced by existing material, cultural or societal conditioning. Using the example of Sakha Yakutia we could observe that this discrepancy can make animal symbols more ambiguous and neutral. They could refer to different meanings as they do not operate in a clearly political form in support of one particular group in a multi-ethnic society. In the latter case, they can reach their symbolic limits, lose their 'neutrality' and become transformed into signs.

ACKNOWLEDGEMENTS

I am very grateful for the funding and support provided by Finnish Academy for the IPY project Community Adaptation and Vulnerability in Arctic Regions; decision number 114038. With deep respect I thank the residents of the Tatta district for sharing their knowledge about cattle and horse breeding and their environment. I want to express my particular gratitude to the Bopposov family in the Uolba village and the Aiianitov, Rakhleev and Postnikov families in Ytyk-Kuel.

REFERENCES

Andrianov, V. (Андрианов, В.)

2006 Новые символы древней земли [New symbols of ancient land]. In *Nashe Vremiia*, April 28.

2009 Якутск обзаведется новым геральдическим символом. [Yakutsk will get a new heraldic symbol]. In *Nashe Vremiia*, April 8.

Bychkova Jordan, B. and Jordan-Bychkov, T.

2001 *Siberian village: Land and life in the Sakha Republic.* Minneapolis: University of Minnesota Press.

Cohen, A.

1974 *Two-dimensional man: An essay on the anthropology of power and symbolism in complex society.* London: Routledge&Kegan Paul.

Ingold, T.

1980 Hunters, pastoralists and ranchers. Cambridge: Cambridge University Press.

1994 *What is an animal*? London: Routledge.

Kempton, D. R.

1996 The Republic of Sakha (Yakutia): The evolution of centre-periphery relations in the Russian Federation. In *Europe-Asia Studies* 48 (4), 587 – 613.

Khudiakov, I. A. (Худяков, И. А.)

1969 *Краткое описание Верхоянского округа* [Short description of Verkhoiansk district]. Leningrad: Nauka.

Kryukov, D. (Крюков, *Д.*)

2009 Быть или не быть суверенитету Якутии? [Sovereignity of Yakutia: to be or not to be?] In *Iakutiia 24,* June 4. http://www.yakutia24.ru/news/index.php?cat=2&id=3658 (accessed 20 June 2009).

Kulakovskii-Diengkir, A. (Кулаковский-Дьингкир, А.)

2009 Өбүгэбит кэриэһэ – саха ынаһа барахсан [Memory of the ancestors – dear Sakha cow]. In *Taatta*, April 14.

Kuzmina, R. A. (Кузьмина, Р. А.)

1998 *Социальная и культурная дистанции: Опыт многонациональной России* [Social and cultural distances: Experiences of multiethnic Russia]. Moscow: Institute Sociologii RAN.

Lawrence, E.

1985 *Hoofbeats and society: Studies of human-horse interactions.* Bloomington: Indiana University Press.

Lévi-Strauss, C.

1963. *Totemism.* Boston: Beacon.

Lytkin, O. and Levchenko, A. (*Лыткин, О., Левченко, А.*)

2007 Кураш, ыстанга и городки – в программе летних Олимпиад [*Kurash, ystanga* and *gorodki* – in the program of the summer Olimpics]. In *Russkii Reporter* 24 (24), November 15. http://www.rusrep.ru/2007/24/narodnye_zabavy/ (accessed 10 May 2009).

Maj, E.

2009 The horse of Sakha: Ethnic symbol in post-communist Sakha Republic (Iakutiia). In *Sibirica* 8 (1), 68–74.

Mandelstam Balzer, M.

1999 Dilemmas of federalism in Siberia. In *Center-periphery conflict in post-Soviet Russia: A federation impleriled*, ed. M. A. Alexseev, 131–166. New York: St. Martin's Press.

2004 Whose homeland is it? Shifting boundaries and multiple identities in the Russian Federation North. In *Properties of culture – culture as property. Pathways to reform in post-Soviet Siberia*, ed. E. Kasten, 233–256. Berlin: Dietrich Reimer Verlag.

Marasyukov, D. (Марасюков, *Д.*)

2005 Символом Якутии стало 'адское исчадие' [As a symbol of Yakutia became 'beast of the hell']. In *Iakusk Vechernii*, July 4.

Miles, W. F. S.

1997 Pigs, politics and social change in Vanuatu. In *Society and Animals. Journal of Human-Animal Studies* 5 (2), 155–167.

Mullin, M. H.

1999 Mirrors and windows: Sociocultural studies of human-animal relationships. In *Annual Review of Anthropology* 28, 201–224.

Nazarov, A. (Назаров, А.)

1994 *Ysyakh* [Ysyakh]. Yakutsk: Bichik.

Neustroev, M. P. (ed.) (Неустроев, М. П.)

2006 *Скотоводство в Якутии: традиции и современность* [Livestock husbandry in Yakutia: Tradition and modernity]. Yakutsk: IaNIISKh.

Nikolaev-Somogotto, S. I. (Николаев-Сомоготто S. I.)

2007 *Два язычества народа Саха* [Two heathenisms of Sakha people]. Yakutsk: Yakutskii krai.

Nikolaeva, D. (Николаева, Д.)

2008 Саха ынаһын көрбөтөх сахалар [The Sakha who have never seen Sakha cow]. In *Куут*, June 19, 33.

Novikov, A. G. (Новиков, А. Г)

2006 Оленеводство – образ жизни северян [Reindeer herding as a livelihood of the northern people]. In *Культура и искусство оленеводческих народов*, ed. U.A. Vinokurova, 79–83. Yakutsk: MCO of Sami, Ministry of Culture RS(Ya); Arctic State Institute of Culture and Art.

Novikov, A. G.and Pudov, A. G. (Новиков, А. Г., Пудов, А. Г.)

2005 *Менталитет северян в контексте циркумполярной цивилизации* [Mentality of the northerners in the context of circumpolar civilization]. Yakutsk.: IaGU.

Obrashchenie

2005 Обращение русской общины города Якутска к Путину [An appeal of Russian Association of Yakutsk to Putin]. In *V Iakutii. Obshchestvenno-politicheskaia internet-gazeta*. http://www.v-yakutia.ru/?id=2507 (accessed 7 May 2009).

Pakendorf, B. et al.

2006 Investigating the effects of prehistoric migrations in Siberia: Genetic variation and the origins of Yakuts. In *Human Genetics* 110, 198–200.

Parel, A.

1969 The political symbolism of the cow in India. In *Commonweath Political Studies* 7 (3), 179–203.

Perfilev, Y. (Перфильев, Ю.)

2001 Региональная символика: в поисках идеологии [Regional Symbols: In Search of a regional ideology]. In *Rossiiskie regiony v 1999g.: Ezhegodnoe prilozhenie k "Politicheskomu alymanakhu Rossii,"* ed. N. Petrov, 324–337. Moscow: Gendalf.

Petrova, M. (Петрова, М.)

2008 Народ Саха: Коренной или пришлый? [Sakha people: autochton or arrived?]. In *Molodezh Iakutii* 32, August 14.

Pink, Sarah

1997 *Women and bullfighting: Gender, sex and the consumption of tradition*. Oxford: Berg.

Popov, R. G. et al (Попов, Р. Г.)

2004 Современное состояние якутского скота и использование его генофонда [Current condition of Sakha livestock and use of its gene pool]. In *Sibirskii vestnik selskokhoziaistvennoi nauki* (3), 55–57.

Pozolotin, S. I. (ed.) (Позолотин, С. И.)

2005 Национальный состав населения, владение языками и гражданство в Дальневосточном федеральном округе. [Ethnic structure of population, language skills and sitizenship in the Federal District of Far East. Census 2002]. In *Itogi vserossiiskoi perepisi naseleniia 2002 goda. Statisticheskii sbornik: Sakha (Iakutiia).* Yakutsk: Federal'naia sluzhba gosstatistiki po Respublike Sakha (Yakutiia).

Razumova, I. A. (Разумова, И. А.)

2004 Про академика Ферсмана, 'обманный камень' и 'лунный пейзаж': Современный фольклор заполярного города [About academician Fersman, 'illusive stone' and 'moon landscape': Contemporary folklore of a polar town]. In *Zhivaia starina* 1, 16–19.

Rethman, P.

2004 A dream of democracy in the Russian Far East. In *In the way of development. Indigenous peoples, life and globalization*, ed. M. Blaser, H. A. Feit and G. McRae, 256–278. London, New York: Zed Books.

Romanova, E. N. (Романова, Е. Н.)

1994 *Якутский праздник Ысыах: истоки и представления* [Yakut festival Ysyakh: origin and

belief]. Novosibirsk: Nauka.

Rosstat

2002a Structure of Gross Regional Product by branches of industries. In *Arctic statistical circumpolar database. Electronic database, Arctic Centre library, Finland*, table 3,5.

2002b Main socio-economic indicators: Republic of Sakha (Yakutia). In *Arctic statistical circumpolar database. Electronic database, Arctic Centre library, Finland*.

Rostovtsev, E. (Ростовцев, Е.)

2007 Молочный бизнес может не уступать алмазному [Business with milk can be at least as profitable as diamonds]. In *Iakutia*, January 19.

Rubtsov, Y. (Рубцов, Ю.)

2003 Геральдика заполярной Якутии: Земля орлов, соболей и мамонтов [Heraldic of polar Yakutia: The land of eagles, sables and mammoths]. In *Poliarnyi krug* 43. http://geraldika.ru/symbols/10191 (accessed 15 May 2009).

Sakwa, R.

2002 Federalism, sovereignty and democracy. In *Regional politics in Russia*, ed. Cameron Ross, 1–22. Manchester: Manchester University Press.

Saprykov, V. (Сапрыков, В.)

1995 *Древние символы Саха (Якутии).* [Ancient symbols of Sakha (Yakutia)] In *Наука и жизнь* 6, 29–32.

Seroshevskii, V. (Серошевский, В.)

1993 *Якуты: Опыт этнографического исследования* [Yakuts: Experience of ethnographic research]. Moscow: ROSSPEN

Shanklin, E.

1985 Sustenance and symbol: Anthropological studies of domesticated animals. In *Annual Review of Anthropology* 14, 375–403.

Shcherbakova, Z. A. (Щербакова, З. А.)

2007 Под каким гербом жить Якутску? [Under which emblem should Yakutsk lives?]. http://rusobshina-yakutia.narod.ru/vilinbahov.html (accessed 17 April 2009).

Sidorov, O. (Сидоров, О.)

2006 *Для многих Якутия до сих пор – страна оленей, тайга да тундра, где рассыпаны алмазы* [For many Yakutia is still a land of reindeer, taiga and tundra, full of diamonds]. In *Novyi region* 40, October 25. http://www.businesspress.ru/newspaper/article_mId_43_aId_397775.html (accessed 17 April 2009)

Sokolov-Mitrich, D. (Соколов-Митрич, *Д.*)

2007 Чингиз хан, открой личико [Reveal you face, Chingis Khan]. In *Izvestiia*, May 18.

Stammler-Gossmann, A.

2006 Top-down and bottom-up globalization in the Russian North. In *Pieces from periphery and centres*, ed. Mare Rantaniemi, Kyösti Kurtakko, Katja Norvapalo, 31–53. Rovaniemi: University of Lapland.

2009a Who is indigenous? Construction of 'indigenousness' in Russian legislation. In *International Community Law Review* 11, 67–100.

2009b Negotiating the indigenous status in the Russian Federation. In *Arctic & Antarctic (International journal of circumpolar sociocultural issues)* 3 (3), 7–51.

Stepanov, A. (Степанов, А.)

2006 Под покровительством *Джесигея* [Under protection of *Dzhesigei*]. In *Iakutiia*, September 5.

Stepanov, A. et al. (ed.) (Степанов, А.)

2007 *Программа социально-экономического развития села Республики Саха (Якутия) на 2007–2011* [Program of socio-economic development of rural settlements in the Republic of Sakha (Yakutia)]. Yakutsk: Ministery of Agriculture.

Styrov, V. (Штыров, В.)
2007 Приветствие участникам и гостям IV Международной мамонтовой конференции [Greeting to participants and guests of IV international mammoth conference]. In *Iakutiia*, June 26.
Takakura, H.
2003 Horse husbandry and absentee livestock ownership in the Sakha: horse trust relationship and the current socioeconomic transitions. In *Indigenous ecological practices and cultural traditions in Yakutia: History, ethnography and politics*, ed. H. Takakura, 121–148. Sendai: CNEAS, Tohoku University.
Tapper, R. L.
1994 Animality, humanity, morality, society. In *What is an animal*? ed. T. Ingold, 47–62. London: Routledge.
Tayurskii, V. (Таюрский, В.)
2007 Кто родственнее якутам – Чингисхан или Чингачгук? [Who is closer to the Yakut people – Chingis Khan or Chingachguk]. In *Nedelia Iakutii*, January 10.
Tichotsky, J.
2000 *Russia's diamond colony: The Republic of Sakha*, Amsterdam: Harwood Academic Publisher.
Turner, V.
1975 Symbolic studies. In *Annual Review of Anthropology* 4, 145–161.
Tyrylgin M. A. (Тырылгин, М. А.)
2000 *Истоки феноменальной жизнеспособности народа Саха* [Origin of phenomenal vitality of Sakha people]. Yakutsk: Bichik.
Ukhanov, S. V. (ed.) (Уханов, С. В.)
1993 *Генетические ресурсы крупного рогатого скота: редкие исчезающие отечественные породы* [Genetic resources of cattle: rare and endangered domestic breeds]. Moscow: Nauka.
Vertiachikh, A. et al. (Вертячих, А. и др.)
2003 *Якутия. Перспективы развития в 21 веке* [Yakutia. Perspectives of development in 21 century] Moscow: Poliarnyi krug.
Vinokurova, U. A. (Винокурова, У. А.)
1994 *Skaz o narode Sakha.* [Story about Sakha people]. Yakutsk: Bichik.
2006 Проблемы этнокультурного развития республики Саха (Якутия) [Problems of ethnocultural development in Republic of Sakha (Yakutia)] In *Etnosotsial'nye protsessy v Sibiri*, ed. Iu.V.Popkov, 121–123. Novosibirsk: Sibirskoe nauchnoe izdatelstvo.
2007 Отрасль-фантом: Что не дает размножаться оленям в Якутии? [The branch-phantom: what is disturbing the reindeer herding?] In *Iakutsk Vechernii*, February 16.
Vinokurova, L. and Boiakova, S.
2009 In search of job and partner: Life stories of women in Iakutiia. In *Sibirica* 8 (1), 24–44.
Yakutia
2001 Год лошади [Year of horse]. In *Iakutiia*, August 7.
Zakharov, I. A. (ed.) (Захаров, И. А.)
2006 *Генофонды сельскохозяйственных животных: генетические ресурсы животноводства России* [Gene pools of farm animals: Genetic resources of animal husbandry of Russia]. Moscow: Nauka.

10

The interrelationship of sociodiversity and biodiversity: Experiences from a Post-Soviet Siberian village

Leo Granberg

Ruralia Institute, University of Helsinki, Finland

ABSTRACT

This paper investigates the extent and means by which Yakutian Cattle survived in three Siberian villages during the Russian transition from socialism to capitalism. The system of farming in these villages is a unique mixture of old traditions, Soviet remnants, and modern features. The production structure is widely diverse. An investigation of the process of privatization and structural changes in animal production led to the finding that sociodiversity facilitated the preservation of this single cattle breed and the recovery of animal production after the crises. Analysis of the interrelationship between diversity in society and diversity of domesticated animals suggests that sociodiversity is an important facilitator for biodiversity, even in a more general sense. Furthermore, to understand the connection of sociodiversity and biodiversity as a conceptual couple, one needs intermediary concepts, such as "ecosystem services."

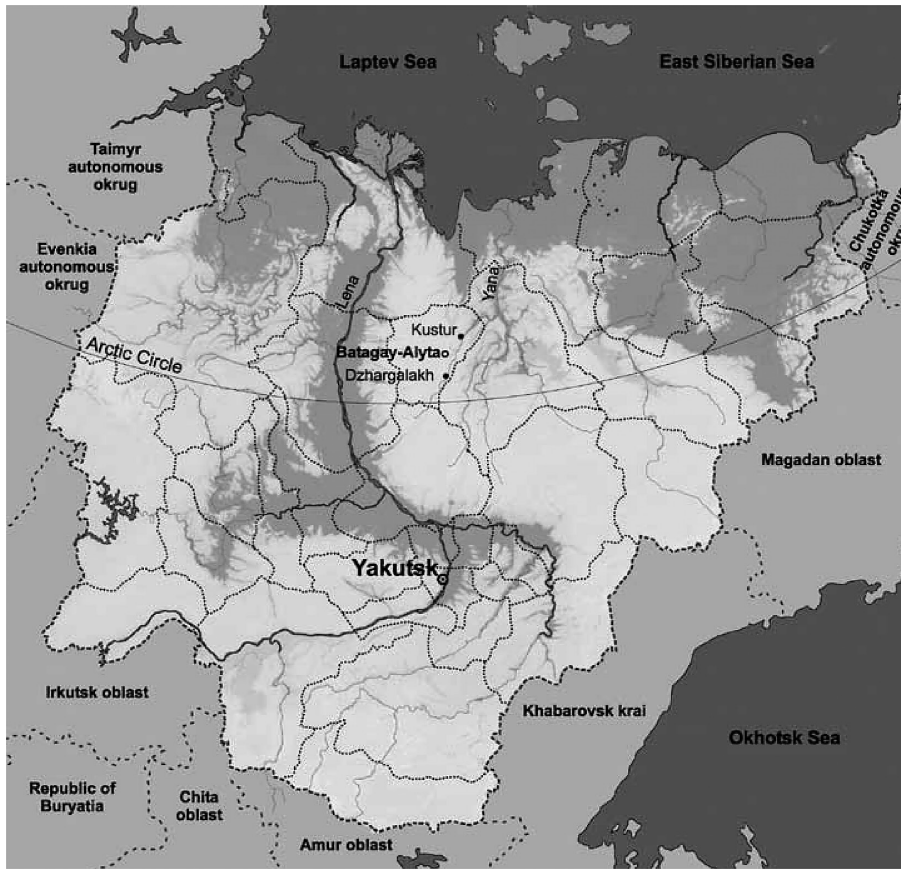
Keywords: Yakutian Cattle, Siberian village, biodiversity

INTRODUCTION

The Evenyo-Bytantay district is located in a mountainous region in Siberia, in the northern part of Sakha (Yakutia), a republic of the Russian Federation (Map 1). Even though the region is one of the coldest populated places on Earth, there is much cultural diversity. Moreover, the ecosystem sustains a wide diversity of domesticated animals, among which are the Yakutian Cattle, a rare breed found only in this distant region. Because the Russian transition from socialism to capitalism brought great difficulties to the region, the survival of the Yakutian Cattle was somewhat in doubt. Our research, however, indicated that in this area sociodiversity facilitated the preservation of this unusual cattle breed. This paper is an attempt to understand the interrelationship between sociodiversity and biodiversity and to open way to further research on a wider scale.

Our research project, which included several teams, was truly multidisciplinary[1]. Members were drawn from animal genetics and agricultural engineering, anthropol-

[1] The main results of the work are published in Granberg, Soini and Kantanen (2009). See also Kantanen and Osva in this volume.



Drawn by Jari Johansson (2009)

Map. 1. The location of Eveno-Bytantay in the Republic of Sakha (Yakutia)

ogy and arts, cultural geography, history and sociology, among others. Each of the researchers was able to contribute important information from the perspective of a specific scientific context. However, such an approach, as interesting and useful as it was, raised many questions: for example, how to prepare better for a joint project, how to process collected data, and how to interpret information produced by one scientific discipline from the premises of another discipline.

Such deliberations led us to reflect on the interrelationship between diversity in society and the diversity of domesticated animals. The concept of biodiversity refers to the variety of plants, animals and micro-organisms; the concept socio-diversity, to the diversity of social, cultural and economic features of a social system.

CONCEPTUAL PAIR

Cross-disciplinary connections, such as the links between sociodiversity and biodiversity, may well open new opportunities for research. Two interpretations of the concepts of sociodiversity and biodiversity express an attempt to expand the area of scientific analysis beyond the narrow context of a particular discipline. The problem

posed in these two cases may well be resolved by the use of a "conceptual pair," as illustrated by data on Yakutian Cattle and other local domesticated animals.

Biodiversity and Agricultural Biodiversity What does the concept of biodiversity mean? According to the study on animal genetic resources for food and agriculture of the Food and Agriculture Organization (FAO), "…the world's biodiversity [is] the variety of its plants, animals and micro-organisms, and of the ecosystems of which they form a part" (2007, 3).

This definition clearly attaches the concept to the natural sciences. On a genetic level, it means variation of inherited material among a certain group of species; on the level of species, it refers to the number of different animal or plant species in a certain region; and on the level of ecosystems, it describes the many different types of natural environments in a certain region (Heinonen and Veteläinen 2009, 14).

Agricultural biodiversity is something more than biodiversity, however. The FAO's definition is as follows: "Agricultural biodiversity encompasses the diversity of the cultivated plants and domestic animals utilized by humankind for the production of food and other goods and services. More broadly, it includes the diversity of the agroecosystems on which this production depends. The capacity of agroecosystems to maintain and increase their productivity, and to adapt to changing circumstances, is vital to the food security of the world's population" (2007, 3).

Agricultural biodiversity, in this definition, is somewhat distanced from the natural sciences. Agriculture is an outcome of the interaction between nature and humankind—between the ecosystem and the social system. Thus, agroecosystems are combinations of social systems and ecosystems. Therefore, the knowledge of social systems is fundamental to an understanding how agricultural ecosystems function and how biodiversity is impacted by agricultural ecosystems.

The following example illustrates the connections between sociodiversity and biodiversity in a modern, European industrial society. In Finland, the results of the rapid agricultural modernization in the 1960s and the 1970s were mechanized, market-oriented family farms, heavily reliant on agricultural chemicals. Such farms also rapidly moved to production of new plant varieties and animal breeds that had been recommended by agricultural consultants, the food industry, and scientists. This quest for the most productive seeds and animal breeds led to a loss of great proportion of existing genetic varieties. Nonetheless, a few small-scale farms succeeded in sustaining and transferring to present times some landraces on their fields and in their cowsheds. Additionally, household gardens preserved many non-commercial varieties of vegetables and fruits, which commercial farming had rejected (Heinonen 2009, 54).

A multidisciplinary approach to analyzing the relationship between society and agriculture, such as the Finnish example, poses many challenges. The language in social sciences differs from the language in natural sciences. The social sciences address different topics and employ different concepts. Of course, the analysis of values, institutions, social movements, and innovations may help to explain changes in biodiversity. Even so, the problem of how to develop cooperation between different disciplines remains.

The need for a common goal, an objective for cooperation, and a bridge between conceptual languages in different disciplines soon arises. A common goal might be a better understanding of some development in the material world, e.g., climate change or sustainable development. In addition, it is crucial to find concepts from the different disciplines which are somehow related to each other. Strength in analysis in one's own discipline is crucial as well. Sociodiversity is a concept that embodies all these characteristics.

Sociodiversity Nowadays an increasing amount of research is devoted to examination of the relations between society and the environment. One of the first researchers to acknowledge sociodiversity was Brazilian scientist Walter Neves, who studied relationships between forms of social organization and ecodiversity on the basis of Amazonian empirics. He describes social evolution in the Amazon region as co-evolution between natural environments and human societies, involving structural adjustments on both sides (Neves 1995, 108). Neves attributes this connection to the pioneering works of Conklin (1954, 1967; see Neves 1995) and Frake (1962; see Neves 1995), and to the work since the 1960s in such disciplines as applied anthropology, archaeology, ethno-biology, and ethno-ecology.

Studying society and ecology as systems is an integral branch of mainstream sociology, developed by Talcott Parsons and continued by Niklas Luhmann. Luhmann brought ecology explicitly into his system theory (Luhman 1990). Today, attempts are made to integrate the social system and ecological system in scientific models, not least because of environmental impact assessments, which are becoming a kind of scientific industry (see Millennium Ecosystem Assessment 2005).

One of the early contributors to the issue of a conceptual pair was Sabine U. O'Hara. In response to work done by E. O. Wilson on biodiversity, O'Hara promoted the role of sociodiversity: "'Biodiversity is our most valuable but least appreciated resource,' writes Wilson (1988, 1992, 281). The same can be said for sociodiversity" (O'Hara 1995, 44).

O'Hara utilized the concept of sociodiversity to criticize mainstream neoclassical economics for its inability to take into consideration links between economic and ecological systems. The reason for the shortcoming in neoclassical economics, according to O'Hara, was that "market activity forms only a small portion of economic activity (namely those activities which find expression in the market's price system), this in turn is only a small portion of human activity within the larger context of human ecosystems' activity" (O'Hara 1995, 32).

O'Hara suggests expanding economic theory with five categories: context, participation, place, limits, and temporality. Her interesting and relevant rationale points up serious weaknesses in economics in the study of many acute societal and socio-ecological problems and developments. However, the question is whether economics is able to study these problems with its own conceptual arsenal. Perhaps the link between economic and ecological systems must be constructed in another way. Recognizing and accepting certain limitations in economic theory is a first step to join economics with other disciplines to solve scientific challenges of a socio-ecological nature. If sociodiversity is not an integral part of economics but a puzzle located in

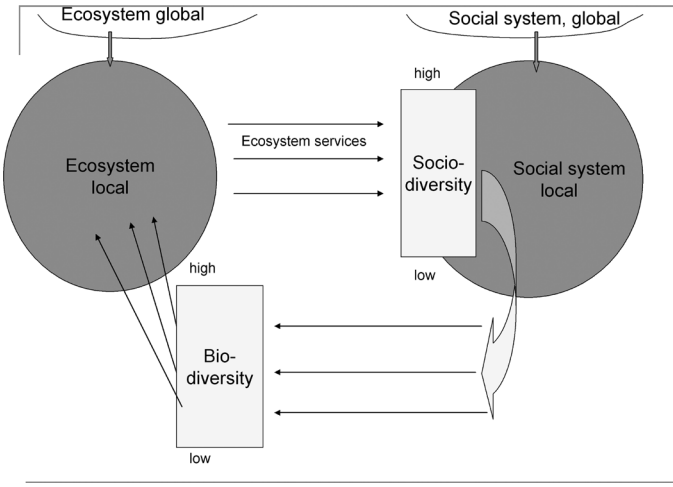


Fig. 1. Relation between sociodiversity and biodiversity

the boundary area of different disciplines, it is a subject for multidisciplinary research.

The Challenge of Multidisciplinary Research Scientific disciplines have their own evolution, but they are tempted to expand their sphere of analysis and to recommend their methodology to other disciplines. The idea that economics should be expanded to study sociodiversity is the outcome of such a temptation. Proponents of multidisciplinary research claim that there is an alternative. Economic theory need not be broadened to encompass all the dimensions of context, participation, place, limits, and temporality. Attempts to do so will probably result in a loss of analytic strength.

In spite of the evident need for multidisciplinary work, it is difficult to envision the reality of such work: the different scientific concepts, the various traditions and methods, and the usual organizational structure of scientific work.

BIODIVERSITY AND SOCIODIVERSITY

Biodiversity is dependent on the ecosystem where it exists, and in an analogous way, sociodiversity is dependent on the social system which produces and restricts it. Therefore, a related conceptual pair is the ecosystem and the social system.

The concept of biodiversity has sub-concepts and sub-groups, as does sociodiversity. Biodiversity can be analyzed among plants and among animals, both as biodiversity between species and as biodiversity inside of species. Our research studies focused on one subgroup, the biodiversity of domesticated animals, especially cattle. Although horses and reindeer are important production animals in the same district, their existence is not threatened to the same extent as that of Yakutian Cattle.

Sociodiversity can also be divided into smaller entities: cultural diversity, organizational diversity, and institutional diversity. They are not exact subgroups of sociodiversity because they partly overlap.

The concept of ecosystem goods and services[2] (Figure 1) links products, such as water, air, and soil, to services, such as purifying air and water or protecting people from the sun's harmful ultraviolet rays. The ecosystem supplies basic elements to facilitate human life, and different social systems find ways to benefit from the ecosystem. "Ecosystem functions refer variously to the habitat, biological or system properties or processes of ecosystems. Ecosystem goods (such as food) and services. (such as waste assimilation) represent the benefits human populations derive, directly or indirectly, from ecosystem functions" (Costanza et al. 1997, 253).

In summary, sociodiversity and biodiversity should be analyzed as a conceptual couple, binding together the different worlds of social sciences and natural sciences. To understand how they are related requires intermediary concepts, such as "ecosystem services."

Biodiversity among domesticated animals Diversity includes the following: diversity of plants/animal varieties; diversity of breeds of domesticated animals; diversity of genetic material within a plant or animal variety; and diversity of genetic material within an animal breed.

Biological diversity has increased slowly over geological time, with occasional setbacks through mass global extinctions. Such a setback is presently taking place. The current crisis, the sixth known extinction, is a result of human activity. It is supposed to be the first time when not only animal diversity but also plant diversity is being lost (Wilson 1992, 304[3]).

During recent decades, decreases of biodiversity in plants have been a consequence of increasing agricultural productivity, globalization of the agricultural market, and the homogenization of scientific applications. These factors have brought about displacement of traditional plants and animals because of their relatively smaller productivity. This development is evidenced both by the decreasing number of plant varieties that are grown and by the reduced genetic variation within different plant varieties (Heinonen and Veteläinen 2009, 14).

The present crisis is the first one to occur during human history and, therefore, during the time of domesticated animals. The variety of breeds of domesticated animals is being reduced, partly because of the extinction of locally-adapted cattle breeds. In 2006 the FAO listed 1,311 known cattle breeds from around the world and suggested that about 16 percent of them were already extinct and a further 16 percent were at various levels of risk. Only about 38 percent were not at risk[4] (FAO 2007, 39).

[2] The concept seems to be unclear, especially, as far as capital stocks and their relationship to capital flows are concerned. Another question is whether capital should be a metaphor for an ecosystem at all because the objective of capital in economics is profit making. In any case, this concept describes an essential relationship between nature and society.

[3] Page number refers to Finnish version of the book.

[4] This calculation is complicated by the unknown status of a large number of cattle breeds, which represent 30 percent of the total. Risk status includes four subgroups: critical, critical-maintained, endangered and endangered-maintained. Yakutian Cattle are "endangered-maintained"; they are endangered because of the small number of cows and bulls, but, on the other hand, they are maintained due to official acknowledgement of their existence and active programs to assist their survival.

Cattle breeds can become extinct for various reasons. Urbanization and modernization create a general pressure towards extinction; more concretely, migration from rural to urban areas hinders the continuity of breeding using traditional methods. Changes in production technology have similar effects. The economic and political demands for maximum milk production per cow and the trend towards high input and output agricultural systems do not favor local or regional breeds, which are naturally multipurpose and less productive than commercial breeds. Applications of animal breeding methods, such as artificial insemination and embryo technology, promote rapid loss of many local breeds (Granberg, Soini, Kantanen 2009, 9–11). Yakutian Cattle (*Yakutsky Skot/Sakha Ynaga*), low productivity Siberian cattle, provide a good illustration. Once displaced by European cattle breeds, they now survive in a small geographical area.

CATTLE AND HUMANS

Yakutian Cattle live in the Evenyo-Bytantay district, where the farming system is a unique mixture of Yakutian traditions, Soviet remnants and modern features. The migration trail of the Yakuts is still shrouded in uncertainty. The most common theory is that the people and their cattle came from southwestern Asia or Mongolia and stayed by Lake Baikal for some time. It is also supposed that the Yakuts[5] migrated in several waves to the central Yakutian regions after the 9th century, with their horses and cows, introducing the tradition of raising cattle in these northern areas. The Eveny moved to the region earlier. References include Crate (2006a, 43–48), Forsyth (1992, 21, 55–57), Jordan and Jordan-Bychov (2001), Jordan.Bychov (2002), Kopoteva and Partanen (2009), and Takakura (2001, 2002a and b, 2004).

For the Yakuts, cattle production determined much of the order of everyday life during migration and after it. Though not exactly nomads, the Yakuts moved from winter dwellings to summer pastures to accommodate the needs of their cattle. They also shared their houses with cattle. Horses were then and are still semi-wild, moving freely around the pastures in the summer and in the winter. According to Basharin (1962), the numbers of cattle were already so high in the 19th century that the cows had to have been an important part of the Yakutian livelihood. Men, horses and cows were dependent on each other during the whole migration, and all were essential to Yakutian livelihoods in the far north. The Yakuts shared their fate with cattle, living in a symbiotic relationship[6] with the animals.

THE YAKUTS, THE EVENY, AND OTHERS

Other people living in the region are the Eveny. In the early 20th century the Eveny population led a nomadic life with reindeer. They travelled along mountain ridges and did not have permanent settlements before the 1930s. At that time, as part of the

[5] According to Forsyth, the Yakuts could be viewed as one of the indigenous peoples of the territory. The Yakuts are of Turkish and Mongolian origin and have adopted several features of different peoples both in language and habits. They have absorbed some hunter-gatherer tribes and expanded their territory in the course of time (Forsyth 1992, 21, 55-57).

[6] Murdoch describes the human-animal relationship in similar cases as "co-constitution and co-construction of achievements by human and non-human" (Murdoch 2008, 188); see also Osva in this volume.

Table 1. Numbers of reindeer, horses and cattle in Sakkyryr (2005 approximation from the Evenyo-Bytantay district)

	1961	1970	1985	2005
Reindeer	14,803	19,203	21,285	10,030
Horses	1,154	1,752	1,950	1,535
Cattle	794	668	862	890

Sources: Archive of Evenyo-Bytantay District; Goskomstat RF, 2005

Federal and Local Action to Protect Yakutian Cattle

Soviet policy towards the numerous minorities in Siberia, the nomadic peoples were organized into associations in national districts with limited self-governance. An autonomous region for the Eveny was created within the Yakut Autonomous Soviet Socialist Republic (ASSR).

The Yakut population was organized in villages, where the Eveny were also to live temporarily. Schools, public services, health care, and other features of modern life became a part of life for the local populations. In addition to the Eveny and Yakuts, these villages also included people from different European regions of the Soviet Union who were there to work in industrial plants or in professional capacities, such as teachers or medical doctors (Slezkine 1994, 168–170; Kopoteva and Partanen 2009, 79–96).

The territory in question is still a rural area occupied in traditional Eveny and Yakut activities: reindeer herding, horse and cattle breeding, fishing, and hunting. During the Soviet era there was stable growth in reindeer herding and horse breeding (see Table 1). Cattle breeding declined at first and then recovered (Kopoteva & Partanen 2009, 102).

Preserving such a special local breed as Yakutian Cattle is an important, practical act to strengthen biodiversity. Some Soviet scientists had already become interested in Yakutian Cattle by the 1950s. In addition, a few of the Soviet Union's political programs and international agreements supported conservation of Yakutian Cattle. Ironically, at the same time, planned crossbreeding of the last of the Yakutian Cattle increased the risk of losing all the purebred Yakutian Cattle. For example, in the 1970s frozen semen of a few Jersey bulls of British origin was used to inseminate some Yakutian Cattle (Partanen & Kantanen 2009, 148–155). A local expert recounted the details of this experiment and the decision of local participants to put an end to it.

> In 1975–1976, and even in 1974–1975, there was an experiment. They inseminated a little with the semen of English Jersey Cattle. This is also a breed producing high-fat milk. In 1980 we found one cow named Eureka, which had an antigen of a Jersey cow. But we detected all her progeny and culled them (Interview 1).

Because people recognized the uniqueness of the Yakutian Cattle, they opposed the crossbreeding. The opposition was also endorsed by the scientific community in Leningrad. The local initiative for culling came from the researcher P.A. Romanov

(Partanen and Kantanen 2009, 152), and the crossbred animals were destroyed.

Another kind of risk for biodiversity arose when the Soviet Union became Russia, changing the context for sociodiversity in the system of animal production.

SOCIODIVERSITY IN ANIMAL PRODUCTION

Sociodiversity refers to the diversity of cultural and social life. In farming it includes the socio-economic organizational forms of animal production. The farming system in the Evenyo-Bytantay District is a unique mixture of traditions, Soviet remnants, and modern features. The production structure is widely diversified. State farms, registered farmers, private families and reindeer herders all keep cattle. Production is diversified among different kinds of production unit, and different ethnic groups have differing traditions. The Eveny are reindeer people and the Yakuts are cattle and horse people. However, in both cases, hunting and fishing, as well as picking and eating mushrooms and berries, have also been part of their lives.

The Transition from Socialism to Capitalism In Soviet times diversity decreased. In the latter part of the Soviet era, one state farm *(Sovkhoze*) dominated animal production in all three villages of the district. During the 1990s this farm closed its branch in the smallest village, Dzhargalakh, and reorganized reindeer herding and horse rearing into a separate enterprise, Leninsky, with headquarters in the main village, Batagay-Alyta. Privatization proceeded gradually. Cattle production was first divided between two independent farms affiliated with the two villages, Batagay-Alyta and Kustur. However, the two were eventually reunited into one farm, called Yakutsky Skot. One outcome was a decrease in the number of cattle on the state farm, which was followed by a decrease in the number of employees. At the same time, many private households increased their cattle numbers, mostly by one or two cows. However, some families became medium-sized cattle keepers, and some of them registered their farms and became family farmers (*fermer*). Reindeer owners established so-called tribal communities (*rodovaya obshchina*), and some of them also started to keep cows. (Granberg & Kopoteva 2009, 117–121).

Formation of a "multi-structural rural economy" (*mnogoukladnaya selskaya ekonomika*) was part of the rural reform, which started in Russia at the beginning of the 1990s. In Evenyo-Bytantay the reform made possible the following types of production units (Granberg & Kopoteva 2009, 121):

- Large-scale enterprises
    - GP (state enterprise) Bytantay (formerly Yakutsky Skot). It specialized in cattle production.
    - GUSP Leninsky (state unitary agricultural enterprise). It specialized in reindeer herding and horse rearing.
- Farmers. They are officially registered as farmers and specialize in either cattle husbandry or horse rearing. Only six farmers were registered in the district in 2005.
- Private households. They are non-registered producers, who may also sell or exchange products at the market. Many families in the villages belong to this group and keep some animals, renting grasslands and taking care of small greenhouses.

- Tribal communities. They are family associations, which uphold the traditions of reindeer herding. Some of the working brigades of the state farms were reorganized to continue as tribal communities. They are made up of relatives who engage in reindeer herding and other additional activities. Tribal communities also keep horses and cattle. Sixteen tribal communities were registered in the district in 2003.

Local Struggle for Sociodiversity of Production Units Kustur is the northernmost village. In spite of its Arctic location, it is the true center of cattle breeding in this district. There is a long tradition of dairy farming, which goes back to the times before the Soviet era. When the *Sovkhoze* was privatized, the state farm comprised about 80 percent of the cattle.

The process of privatization began in Kustur when the farm became independent and many positive developments started to come about (Interview with a villager; see Granberg & Kopoteva 2009, 123–124). Soon, however, the process of privatization threatened the future of farm and animal production in the village as a whole. In this situation many question arose. What kind of production units would be allowed? Which of them would be carried on in the village in the future? A villager described the turbulent situation in the village:

> In 1989 the state farm was established in this village. Before that the farm was a department of the Leninsky state farm with headquarters in Sakkyryr … [at that time] all the money was transferred via Sakkyryr … nothing was built here. Then, before the state farm collapsed [1993–1995], it was already decentralized, and the new farms were formed… .
>
> And then from 1993 to 1995 the state farm collapsed. They started to ruin the state farm by giving orders from above. People didn't want that. Because people don't live separately from one another in the north, they live in communities. Individuals don't hold out for a long time.
>
> They started to divide the farm into shares, starting with reindeer in 1994 to 1995. People lost the feeling of responsibility, and there was no discipline, no salaries …. First they divided reindeer among shareholders, then horses. It became clear that as soon as the reindeer were divided, none of them were left alive. They divided horses and again, none of them were left.
>
> They wanted to divide everything. The head of the district really wanted to divide everything, including cows; but people objected at a meeting. Still there were some elderly men who wanted to get their share, arguing they would work by themselves.
>
> (Question) How did all this happen?
>
> When people entered the cooperative farm, each of them received a legal share. Then the system started to collapse from within. Ruining the state farms had not been brought to an end, and now they started ruining the cooperative farms. They started to establish family farms. People, mainly young people, wanted neither to listen nor to attend meetings. Only old people gathered together and furiously began to suggest dividing up everything.

> And the main reason for this was that the longer a person had worked, the more he would get for himself. This was the main motivation for their behavior. They didn't think about others who would have no job and no cattle after division. This took place in 1996.

These kinds of stories could be told from many other *Sovkhozes* and *Kolkhozes* in Russia around that time. What is special is that the fate of the Yakutian Cattle depended on these local decisions during the period of transition. The cattle population at that time was so small that it might well have disappeared because of some unsuccessful solutions and unhappy accidents[7]. When the people made their decision, they also had to consider the fate of "their"[8] cattle. Despite the attempt to privatize the state farm, it survived. However, it was smaller in size and continued to undergo several transformations during the following years. Because the state farm was not closed, the Yakutian Cattle also survived.

The conservation of the Yakutian Cattle reached a new phase when the Sakha Republic enacted a law on the conservation and use of the cattle in 2001. Probably the only law of its kind in the world, it elevates Yakutian Cattle to the status of an endangered breed (Partanen & Kantanen, 2009, 164–166). This law also included economic support for cattle production and the establishment of an experimental farm and research laboratory[9], under the auspices of the Ministry of Agriculture. The farm guaranteed the genetic diversity of Yakutian Cattle. Nowadays, bulls are rotated between private and public producers and among the three villages.

The distribution of animals to different types of owners in 2004 is presented in the Table 2. Ownership was diversified to four different categories. Interestingly, exceptions from the traditional division of labor have begun to emerge; some of reindeer herders' communities now also keep cattle. Sociodiversity is a reality in this small

Table 2. Percentage share of domesticated animals by different organizations in the Evenyo-Bytantay district, 2004

Organization	Cattle	Horse	Reindeer
State enterprises	22.6	22.4	40.7
Family farms	1.4	3.3	–
Private households	70.0	41.2	21.4
Tribal communities	5.9	33.0	37.4
Total	100 N=930	100 N=1472	100 N=8935

Source: Program (2004).

[7] Such a process probably took place, for example, for Rhodope Cattle in Bulgaria. These cattle were also kept in a state-controlled cowshed before the system collapsed and the farm was bankrupted.

[8] The Yakut population especially is proud of these cattle, which are so special compared with all other existing cattle and which played a crucial role in the history of the Yakuts.

[9] The state farm units became the 2005 Departments of the new state institute, which maintained its headquarters in Yakutsk. This institute acts under the authority of the Research Institute of Animal Production, an institute of the Russian Academy of Sciences. In this phase a third village in central Yakutia was connected to the enterprise, Uluu-Syhyy in Gornyy district. The Research Institute has a special laboratory to study issues connected with Yakutian Cattle.

Table 3. Number of cattle, horses and reindeer in the Evenyo-Bytantay district in 1990–2007

	1989	1992	1994	1996	1998	2000	2003	2005	2007
Cattle	936	1,135	1,075	1,006	899	863	963	890	894
–Cows		451	450	394	370	309	328	349	401
Horses	2,028	1,961	1,009	1,125	1,425	1,339	1,429	1,535	1,590
Reindeer	21,203	21,769	18,484	12,052	11,908	9,932	8,490	10,030	12,440

district.

The privatization process took place through local and national conflicts. The solution that was adopted, was modified by actions of the local people, i.e., workers in the state farm, in cooperation with the leaders of the local administration. Connections to academic researchers and national experts, as well as to influential politicians in Yakutsk, enriched the process. The action for Yakutian Cattle, which paralleled the movement of the Eveny autonomous region, was also in keeping with identity construction in the Republic of Sakha. Construction of national identity was part of post-Soviet development; politicians in Sakha, along with many other regions, aimed to achieve a stronger regional autonomy inside of the Russian Federation. The symbols of the national past were useful in creating this identity, and the image of Yakutian Cattle[10] as a national breed was in line with this trend.

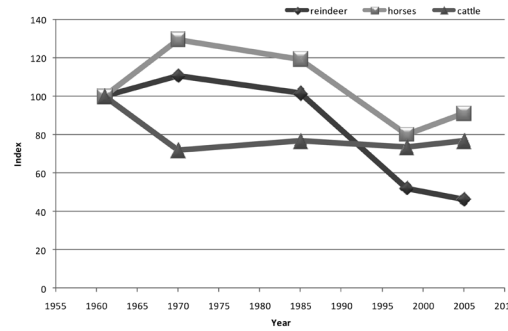


Fig. 2. Number of animals per number of residents in Eveno-Bytantay district 1955–2005, 1961=100, reindeer, horses and cattle

Rearrangements of animal production during privatization had strong negative effects on the numbers of animals (Table 3, see Granberg & Kopoteva 2009, 122). The decrease in reindeer numbers was particularly severe (see Vitebsky 2005). The government's aim already in 2005, however, was to rebuild reindeer stocks, and the number of reindeer started to increase by about 10 percent a year. In a similar way, horse rearing collapsed, but the number of horses started to increase again after 2000. The number of cows decreased by a third between 1994 and 2000—from 450 to 309—but stabilized after 2000. The decrease in other livestock was not so rapid.

The Figure 2 summarizes the development of animal production. Animal numbers are compared with the total number of human residents since the 1960s to show the animal-per-capita relationship. This relationship illustrates how dramatic privatization was for reindeer herding and horse rearing. Cattle production did not experience a similar decrease because households undertook responsibility to keep cattle in their simple cowsheds and because collective production continued to some degree. The traditional methods for keeping cattle were in some use all through the

[10] Along with Yakuts' horses and Eveny's reindeer

Soviet era and thus were rapidly revived and adapted by private households in the villages. On a limited scale, there was continuity of sociodiversity from Socialist to post-Socialist society.

It sounds, certainly, like a paradox to say that the state farm was needed in post-Soviet Russia to preserve Yakutian Cattle. Indeed, state farms had systematically eliminated the remaining stocks of Yakutian Cattle all over Siberia for decades. Nonetheless, the larger farm was necessary to assure sufficient genetic diversity and to guarantee long-term continuity in the breeding of these rare cattle. Furthermore, a combination of different cattle breeding organizations, e.g., state farm and private farms, creates a safer situation for the breed than the concentration of the total production on one form of organization or another.

Intentional or not, sociodiversity facilitated the local livelihood during the deep crises of transition from socialism to capitalism in the small villages in Russia, which have been studied, and sociodiversity assisted the recovery of animal production after the crises.

CONCLUSION

In summary, an interrelationship exists between sociodiversity, a concept from social sciences, and biodiversity, a concept from natural sciences that describes characteristics of ecosystem. An intermediating concept between these systems is ecosystem services, which means producing and supplying goods for society, regulating the living environment of humans, and offering services for various cultural needs.

This is one example of transdisciplinary conceptual connections. The methodological reason for this consideration is that finding a link between such concepts might open new opportunities for multidisciplinary research work. The main argument in this paper is that sociodiversity is an important precondition to sustain biodiversity, that is, to maintain ecological sustainability.

An ecological system supplies services to any social system, and different social systems have different capacities to receive these services. This capacity depends on the way a society is organized; in other words, it depends on the sociodiversity of the particular society. A social system not only receives but also processes ecosystem services and produce outputs, which move, in turn, from the social to the ecological system. Through these outputs each social system has an impact on biodiversity. The quality and intensity of the impact depends on the quality of sociodiversity in the social system. Finally, changing biodiversity also has consequences and will in the long run change the capacity of the ecosystem to produce services for the social system.

Co-evolution in the Amazon (by Neves), Finland's modern plant production system (by Heinonen et.al), as well as the case of Siberian Cattle support the argument that sociodiversity has consequences for biodiversity. A higher level of sociodiversity can keep biodiversity richer than a lower level of sociodiversity, e.g., monocultural. Naturally, this data is too restricted for any final conclusions. An additional difficulty is that the effects of sociodiversity on biodiversity can only be studied indirectly because biodiversity is connected to a certain spatially organized ecosystem and sociodiversity is connected to a certain, often non-spatial social system. They only

partly overlap.

However, sociodiversity in farming appears to offer better promise for supporting and promoting biodiversity than exclusionary small-scale farming, as seen in the Russian rural transition, or than modern family farming, as seen in the Finnish agricultural system. In short, large-scale farming is efficient and small-scale farming is beautiful, but sociodiversity offers such flexibility and multi-faceted benefits to the social system that no other solution can offer.

REFERENCES

Costanza, R., d'Arge, R., de Groot, R., et.al.
1997 The value of the world's ecosystem services and natural capital. In *Nature*, Vol. 387, 253–260.

Crate, S.
2006 *Cows, Kin and Globalization: An Ethnography of Sustainability*. Plymouth: Altamira Press.

FAO
2007 *The state of world's animal genetic resources for food and agriculture*, ed. Rishkowsky. Rome: Barbara and Pilling, Dafydd.

Forsyth, J.
1992 *A History of the Peoples of Siberia. Russia's North Asian Colony 1581–1990.* Cambridge: Cambridge University Press.

Granberg, L., Soini, K. and Kantanen, J. (ed.)
2009 *Sakha Ynaga – Cattle of the Yakuts.* Annales Academiae Scientiarum Fennicae Humaniora 355. Helsinki: Finnish Academy of Science and Letters.

Granberg, L. and Kopoteva, I.
2009 Changing the production system. In *Sakha Ynaga – Cattle of the Yakuts.* Annales Academiae Scientiarum Fennicae Humaniora 355, ed. L. Granberg, K. Soini and J. Kantanen, 117–146. Helsinki: Finnish Academy of Science and Letters.

Heinonen, M. and Veteläinen, M.
2009 Maatiaiskasvit kansallisina suojelukohteina Suomessa. [Landraces and national conservation activities] In *Maatiaiskasvien ylläpitoviljely Suomessa.* Maa- ja elintarviketalous 144, ed. M. Heinonen, 9–24. Jokioinen: MTT Agrifood Research Finland. www.mtt.fi/met144.pdf (accessed 14 December 2009)

Heinonen, M.
2009 Maatiaisviljat Suomessa 1900-luvun alussa. [Cereal landraces in the early 20th Century Finland] In *Maatiaiskasvien ylläpitoviljely Suomessa.* Maa- ja elintarviketalous 144, ed. M. Heinonen, 25–58. Jokioinen: MTT Agrifood Research Finland. www.mtt.fi/met144.pdf (accessed 14 August 2009).

Interview 1
2004 Interview of a local professional worker in Sakkyryr.

Interview 2
2004 Interview of a local professional worker in Kustur.

Jordan B. and T. G. Jordan-Bychkov
2001 *Siberian Village, Land and life in the Sakha Republic*. Minneapolis: University of Minnesota Press.

Jordan, B.
2002 *A Geographical Perspective on Ethnogenesis: The Case of the Sakha Republic (Yakutia)*. Austin: The University of Texas at Austin.

Kopoteva, I. and Partanen, U.
2009 A Historical excursion to northern Sakha. In *Sakha Ynaga – Cattle of the Yakuts.* Annales Academiae Scientiarum Fennicae Humaniora 355, ed. L. Granberg, K. Soini and J. Kantanen, 75–116. Helsinki: Finnish Academy of Science and Letters.

Luhmann, N.
1990 *Ökologische Kommunikation* [Ecological communication]. Opladen: Westdeutscher Verlag.
Millennium Ecosystem Assessment.
2005 *Millennium Ecosystem Assessment*. http://www.millenniumassessment.org/en/Index.aspx (accessed 12 November 2009).
Murdoch, J.
2006 Networking rurality: emergent complexity in the countryside. In *Handbook of Rural Studies*, ed. P. Cloke, T. Marsden and P.H. Mooney, 171-184. London: Sage Publications.
Neves, W.
1995 Sociodiversity and biodiversity, two sides of the same equation. In *Brazilian Perspectives on Sustainable Development of the Amazon Region* (Man and the Biosphere Series. Vol. 15), ed. M. Clüsener-Godt and I. Sachs, 91-103. Paris: UNESCO.
O'Hara, S. U.
1995 Valuing sociodiversity. In *International Journal of Social Economics* Vol. 22 (1995):5, 31-49. Bradford: MCB University Press.
Ottaviano, G. I. P., Pinelli, D., Maignan, C. J. and Rullani, F.
2003 Bio-Ecological Diversity vs. Socio-Economic Diversity: A Comparison of Existing Measures. FEEM Working Paper No. 13.2003. Available at SSRN. http://ssrn.com/abstract=389043 (accessed 13 September 2009).
Partanen, U. and Kantanen, J.
2009 How a cattle breed became the object of conservation. In *Sakha Ynaga – Cattle of the Yakuts.* Annales Academiae Scientiarum Fennicae Humaniora 355, ed. L. Granberg, K. Soini and J. Kantanen, 148–168. Helsinki: Finnish Academy of Science and Letters.
Program
2004 *Программа социально-экономического развития муниципального образования "Эвено-Бытантайский национальный улус» на 2004–2007 годы*. [Program of socio-economic development for municipal education in Eveno-Bytantaiskii district]. Batagay-Alyta: Unpublished.
Romanov, P. A. (Романов П. А.)
1984 *Охрана и использование генофонда Якутского скота* [Protection and use of genofond of Yakutian cattle]. Yakutsk: Yakutsk knizhnoe izdatel'stvo.
Takakura, H.
2001 The Formation of Even's national Autonomy in the Sakha Republic: AnExperience of Socialism and the Populations of Northern Yakutia in Siberia. In *Northeast Asian Studies* 6, 27–50. Sendai: CNEAS, Tohoku University.
2002 An Institutionalized Human-Animal Relationship and the Aftermath: A Reproduction Process of Horse-bands and Husbandry in Northern Yakutia, Siberia. In *Human Ecology*, 30(1), 1–19.
2003 Becoming a Soviet Village, then Taking off the Soviet Village. An Experience of Socialism among the Population of Northern Yakutia. In *Anthropological Perspectives of the North-Eurasian World*, ed. K. Inoue, 37–66. Sapporo: Slavic Research Center, Hokkaido University.
2004 Gathering and Releasing Animals: Reindeer Herd Control Activities of the Indigenous Peoples of the Verhoyansky Region, Siberia. In *Bulletin of National Museum Ethnology* 29 (1), 43–70. Osaka: National Museum of Ethnology.
Wilson, E. O.
1992 *The Diversity of Life*. Cambridge, Mass.: Harvard University Press Harvard University Press.
Wilson, E. O. and Peter, F. M.
1988 *Biodiversity*. Washington, D.C.: National Academy Press.
Vitebsky, P.
2005 *The Reindeer People*. Boston: Houghton Mifflin Company.

*Reference of Law
Закон от 7 июня 2001 года 3 Но 291 – II Об охране и использовании генофонда Якутского скота.

11

The origin and genetic diversity of native Yakutian cattle as revealed by DNA-Marker analysis

Juha Kantanen

Nordic Genetic Resource Centre, Norway &
Agrifood Reseach, Finland

ABSTRACT

Yakutian Cattle are the last endangered native stock of domesticated cattle in Siberia and are well adapted to sub-Arctic conditions. The main population of the breed is currently distributed among three northern villages in the Republic of Sakha in the Russian Federation where cattle production provides an important livelihood for the local people.
DNA marker analyses have many applications in investigations of diversity and population structure of domesticated animal species and breeds. Three different types of genetic markers were employed to assess genetic diversity of the Yakutian Cattle breed and relationships between the Yakutian Cattle and several other Eurasian breeds of domestic cattle (*Bos taurus*). The data indicate that the Yakutian Cattle descended from the Near Eastern domesticated cattle, but the population also has an exceptional maternal ancestry (the T4 "dam line"), the origin of which is not well known as yet. In a global context, Yakutian Cattle are genetically unique.

Keywords: Yakutian Cattle, DNA-marker analysis, domestication, ancestry, genetic resources

INTRODUCTION

Yakutian Cattle are the last remnants of the unique Siberian Turano-Mongolian type of domesticated cattle (*Bos taurus*); they are well adapted to the extreme sub-Arctic Siberian conditions. Of the 1,200 purebred animals left in Sakha (Yakutia), less than 600 are dairy cows. Up to 74 percent of the Yakutian Cattle are distributed among the three northern villages of Dzhargalakh, Kustur, and Batagay-Alyta (also called Sakkyryr), collectively termed the Eveno-Bytantay district, which is located about 150 kilometers north of the Arctic Circle. During the last decade, Yakutian Cattle were returned to the southern part of the Sakha Republic from where they had previously vanished. Therefore, the cattle are currently found also in the village of Uluu-Syhyy and on four farms closer to the capital of Sakha, Yakutsk City (Kantanen et al. 2009a).

Turano-Mongolian cattle can be distinguished from the European humpless taurine cattle by their characteristic cranial formation and the shape of the horns

(Ivanova 1997). Although these animals were once common in the eastern and central regions of Asia, several of the original types have disappeared due to extensive crossbreeding with modern European cattle breeds (Felius 1995; Li et al. 2005). Yakutian Cattle are a purebred, aboriginal population that produces milk and meat. These cattle currently produce approximately 1,000 kilograms of milk annually; the milk is high in fat and protein, averaging 5.03 percent and 4.69 percent respectively. The cattle have been used also as draft animals. Yakutian Cattle are currently endangered; therefore, the Sakha Republic enacted a law on the conservation and use of the cattle in 2001 (Partanen and Kantanen 2009). This breed may be unique in that there may be no other breeds of domesticated animal species whose conservation has been defined by law.

The history of Yakutian Cattle is not well known. The most common theory is that the people and their cattle came from southwest Asia or Mongolia and stayed by Lake Baikal for some time before they migrated to Sakha (Kopoteva and Partanen 2009). However, the area of the Fertile Crescent the Near East, in western Asia, was the place where humpless cattle were domesticated (Bradley et al. 1996). From there, domesticated cattle moved with migratory people, like bands of traders and armies, gradually spreading thousands of kilometers to eastern Asia and finally reaching Yakutia. According to Payne and Hodges (1997), domestic cattle appeared some 4,000 to 5,000 years ago in north-eastern Asia—Mongolia, North China, Korea, and Japan.

Genetics provides useful tools to study origins, genetic diversity, genetic characteristics of distinct breeds, and relationships among various breeds of cattle. In addition, molecular and population genetic analyses can be applied to infer the value of a breed for the maintenance of the genetic diversity of the species (e.g. Bennewitz et al. 2006; Li et al. 2007). From the long-term perspective, genetically divergent breeds, such as Yakutian Cattle, may be crucial for sustainable animal production systems in the future, especially as an important resource for economic development in marginal rural areas. Such areas are less favorable for agriculture but could be used for food production if low-input farming systems are applied. These breeds carry genes and gene combinations which are important for survival in extreme conditions. In addition, these animals are a valuable resource for the development of new breeds, as well as for scientific research work.

So far, the most popular DNA markers in population genetic analyses have been biparentally-inherited (from both parents) autosomal[1] microsatellites or uniparentally-inherited (from a single parent) mitochondrial DNA and Y-chromosomal DNA. Microsatellites are short segments of DNA, consisting of a short unit of nucleotides which is typically repeated ten to a hundred times at a microsatellite locus (Hancock 1999). For example CA with cytosine and adenine bases is a typical unit of two nucleotides. Microsatellites are typically neutral markers, and neither natural nor artificial selection has any impact on frequencies of different microsatellite alleles. Mitochondrial DNA is a circular double-stranded DNA molecule found outside of the cell nucleus in cytoplasmic organelles termed mitochondria. It is

[1] An autosome is a non-sex chromosome; X and Y are sex chromosomes and therefore non-autosomal chromosomes.

inherited maternally from the dam (Bradley et al. 1996). The Y-chromosomal markers are inherited from the father, the sire (the so-called paternal inheritance), and provide evidence of paternal origins of populations (Jobling and Tyler-Smith 1995).

At Agrifood Research Finland (MTT), these kinds of molecular genetic analyses on Eurasian cattle breeds were conducted, and the genetics of the Yakutian Cattle were investigated in a global context. In these studies, DNA markers for the Yakutian Cattle were compared with the DNA data of several European and Asiatic cattle breeds (e.g. Li et al. 2007; Kantanen et al. 2009b). The results of these studies confirm the origins of Yakutian Cattle.

MATERIALS AND METHODS

The Food and Agricultural Organization of the United Nations (FAO) has recommended a set of autosomal microsatellites for each domestic animal species to be used as the standard to calculate genetic diversity within the population, as well as genetic relationships among breeds. For the Yakutian Cattle all thirty microsatellites recommended by the FAO have been typed. The list of markers and the applied laboratory protocols to genotype these markers have been previously described by Li et al. (2007).

Genetic variation within one breed was quantified on the basis of microsatellite data, e.g., in terms of heterozygosity and average number of alleles per marker (Li et al. 2007). In population genetics, heterozygosity can be defined as the probability that two alleles of a particular DNA marker taken at random within a population are different. The genetic differences and relationships among the breeds were estimated, for example, by computing the genetic distance D_A of Nei et al. (1983) between all breed-pairs. Genetic distance expresses the genetic difference between two populations as a single number. Li et al. (2007) offers a detailed description of the applied statistical analyses.

To shed light on the maternal history of Yakutian Cattle, the mitochondrial DNA sequences in Eurasian cattle breeds were investigated by Kantanen et al. (2009b). In this study, the mitochondrial DNA data came from the sequencing of the non-coding mitochondrial DNA segment, the "control region" or "D-loop region," which initiates replication and transcription in the mitochondrial DNA molecule (Bradley et al. 1996; Taberlet 1996). The analyzed sequence was of 255 base-pairs long between the nucleotide positions 16021 and 16275 in relation to the entire *Bos taurus* mitochondrial DNA sequence. In total, 268 animals from 34 cattle breeds were analyzed for mitochondrial DNA variation in the study, including 24 Yakutian Cattle animals.

The paternal history and genetic diversity of the Yakutian Cattle were investigated by typing five Y-chromosomal microsatellites. A total of 405 bulls representing 54 cattle breeds were assessed: 343 bulls were from Europe; 27 from Central and East Asia; and 35 from the Near East and Anatolia. The data included typings of 17 Yakutian Cattle bulls. More basic information on the markers analyzed by Kantanen et al. (2009b) can be found in Edwards et al. (2000) and Ward et al. (2001) for the Y-chromosomal microsatellites INRA124, INRA189, BM861 and BYM–1; and in Perret et al. (1990) and Bradley et al. (1994) for the marker DYZ–1, which was amplified using a forward primer 5′ CCT GGC GAC TGT GCA ATA TT 3′ and a reverse primer 5′ CAC

ACA CAC AAC CGG TTT CT 3′.

The statistical analyses for the mitochondrial and Y-chromosomal data sets have been described in Kantanen et al. (2009b).

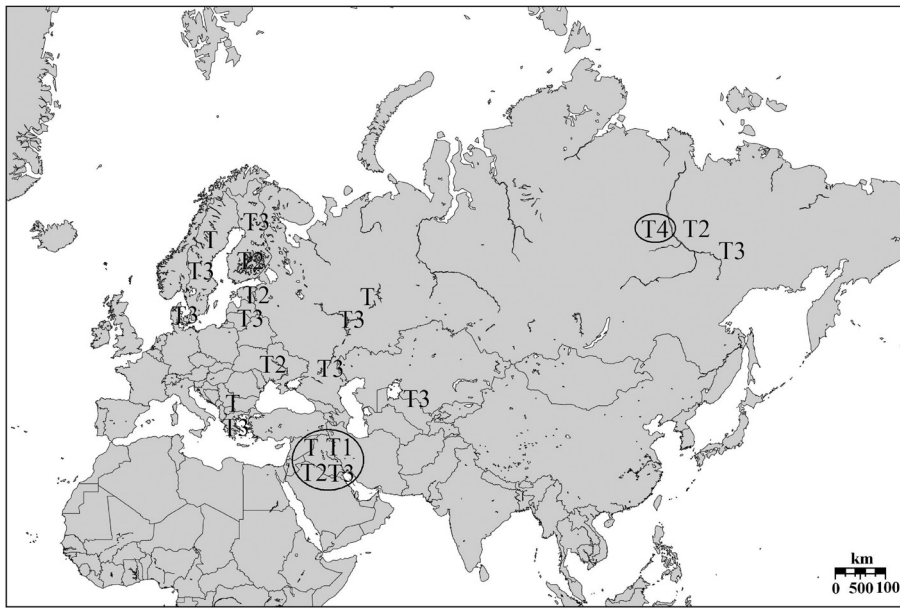
RESULTS AND DISCUSSION

In the study conducted by Li et al. (2007), genetic variation at 30 autosomal microsatellite loci within 21 Eurasian cattle breeds was compared. The intrapopulation variation was presented in terms of heterozygosity under Hardy-Weinberg equilibrium and average number of alleles per locus. The average heterozygosity among the 21 breeds was 0.67, while in Yakutian Cattle, Ukrainian Grey and Podolian Cattle (from Serbia), the heterozygosity estimates were 0.58, 0.64 and 0.56, respectively. Correspondingly, the average number of the alleles per DNA-marker in these breeds was 5.00, 5.07 and 3.97, respectively. In all Eurasian breeds studied, this value averaged 5.99 per breed. That is, these estimates indicate that the Yakutian Cattle, Ukrainian Grey and Podolian Cattle display the lowest levels of intrapopulation diversity.

A possible explanation for the current low level of intrapopulation diversity is that only a limited number of cattle may have been brought to the Sakha region during prehistoric times. Therefore, the foundation stock of Yakutian Cattle may have been relatively small. Moreover, like Ukrainian Grey Cattle and Podolian Cattle, Yakutian Cattle experienced a long period of genetic isolation, which may partly explain the observed lower level of genetic variation.

The autosomal microsatellite data used in this study to estimate relationships showed the large genetic distances between the Yakutian Cattle and the European and other Asiatic breeds, indicating that the breed is genetically diverged from the others (see Li et al. 2007). The long-term genetic isolation from the other breeds may best explain these distances.

Based on the nucleotide differences found in sequencing, mitochondrial DNA D-loop sequences of the taurine cattle (*B. taurus*) can be classified into five haplogroups (i.e., "damlines"): T, T1, T2, T3 and T4 (Troy et al. 2001; Mannen et al. 2004; but see also Achilli et al. 2008). In the Eurasian continent (see Map 1), T, T1, T2 and T3 have been found in the modern Near Eastern cattle breeds, while only T, T2 and T3 appear in European breeds (Troy et al. 2001). In East Asia, the T and T1 have not been detected in the Turano-Mongolian cattle, while the T4, which is absent in the modern Near Eastern cattle, has been so far found only in the Turano-Mongolian cattle (Mannen et al. 2004; Lai et al. 2006). This is interesting because Eurasian taurine cattle are descended from the wild ox (*Bos primigenius*) populations domesticated ten thousand years ago in the Near East. Some researchers have speculated that the T4 should have its origin in some other wild ox population than the Near Eastern population, most probably in an east Asian wild ox population since the T4 has been detected so far only in Turano-Mongolian breeds (Mannen et al. 2004; Lai et al. 2006). However, in the recent whole mitochondrial genomic study, it was suggested that the T4 might have originated from the same genetic sources as the T3 haplogroup or from a genetically closely-related population of aurochs (Achilli et al. 2008). Yakutian Cattle also have this T4 dam line in addition to the dam lines T3 and T2, which can be found in European samples. This suggests that the Yakutian Cattle



Map 1. The distribution of the taurine mitochondrial DNA haplogroups T, T1, T2, T3 and T4 ('dam lineages') is presented in the Eurasian continent according to the data of Kantanen et al. (2009b). The larger circled region refers to the Near Eastern center for domestication of the humpless taurine cattle (*Bos taurus*). The animal populations in these areas typically display more genetic diversity than populations far from the centers for domestication. This is seen also in the diversity of cattle mitochondrial DNA: Near Eastern populations show more haplogroups than European breeds. However, the haplogroup T4 found in Yakutian Cattle has not been detected in the Near Eastern populations, indicating partly different maternal ancestry for the Yakutian Cattle.

share prehistoric maternal ancestries with domesticated Near Eastern cattle.

The Y-chromosomal markers on the non-recombining Y-specific part of the chromosome are transmitted from sire to son as a single block, i.e., "a haplotype." In the study by Kantanen et al. (2009b), the allelic combinations of the five studied Y-chromosomal microsatellites were recorded as haplotypes; a total of 26 haplotypes were observed among 405 bulls tested. The Y-chromosomal microsatellite haplotype data showed that the Yakutian Cattle have a same Y-haplotype as Ala-Tau (from central Asia), Anatolian Black, East Anatolian Red (both from Turkey), Jersey (from the UK) and Podolian Cattle (from Serbia). These findings suggest a common prehistoric paternal ancestry for these breeds and offers additional evidence that the Yakutian Cattle have prehistoric ancestries in same domesticated populations as European cattle.

To conclude, the Yakutian Cattle descended from the Near Eastern domesticated cattle, but the population also has an exceptional maternal ancestry (the T4 "dam line"), the origin of which is not well known as yet. The results of the DNA marker analysis indicate that the genetic value of the Yakutian Cattle may lie particularly in the novel gene combinations that the population carries (Bennewitz et al. 2006). These combinations developed through adaptation to Siberian conditions and periods of extended isolation. A Finnish multidisciplinary research group has explored

the future conservation possibilities of the Yakutian Cattle in the original breeding sites in the eastern Siberian villages (Granberg et al. 2009). Because of their adaptation to the sub-Arctic environment, which has made cattle production in northern Siberia possible, the Yakutian Cattle have economic, socio-cultural and symbiotic values for the Yakutian people (Stammler-Gossmann 2009). However, throughout the wider republic also, Yakutian Cattle are considered to be a vital gene pool for the development of agriculture in the future (Soini & Partanen 2009).

REFERENCES

Achilli, A., Olivieri, A., Pellecchia, M., Uboldi, C., Colli, L. et al.
2008 Mitochondrial genomes of extinct aurochs survive in domestic cattle. In *Current Biology* 18, 157–158.

Bennewitz, J., Kantanen, J., Tapio, I., Li, M-H., Kalm, E. et al.
2006 Estimation of breed contribution to present and future genetic diversity of 44 North Eurasian cattle breeds using core set diversity measures. In *Genetics Selection Evolution* 38, 201–220.

Bradley, D. G., Machugh, D. E., Loftus, R. T., Sow, R. S., Hoste, C. H. and Cunningham, E. P.
1994 Zebu-taurine variation in Y chromosomal DNA: a sensitive assay for genetic introgression in West African trypanotolerant cattle populations. In *Animal Genetics* 25, 7–12.

Bradley, D. G., MacHugh, D. E., Cunningham, P. and Loftus, R. T.
1996 Mitochondrial diversity and the origins of African and European cattle. In *Proceedings of the National Academy of Sciences*, USA 93, 5131–5135.

Edwards, C. J., Gaillard, C., Bradley, D. G. and MacHugh, D. E.
2000 Y-specific microsatellite polymorphism in a range of bovid species. In *Animal Genetics* 31, 127–130.

Felius, M.
1995 *Cattle Breeds– An Encyclopaedia*. Doetinchem, The Netherlands: Misset.

Granberg, L., Soni, K. and Kantanen, J. (ed.)
2009 *Sakha Ynaga – cattle of the Yakuts.*(Annales Academiae Scietiarum Fennicae. Humaniora, No. 355), Helsinki: Finnish Academy of Science and Letters.

Hancock, J. M.
1999 Microsatellites and other simple sequences: genomic context and mutational mechanisms. In *Microsatellites. Evolution and Applications*, ed. D.B. Goldstein and C. Schlötterer, 1–23, Oxford: Oxford University Press.

Ivanova, Z. I. (Иванова, З. И.)
1997 *Генофонд антигенов крови крупного рогатого скота Якутии* [Gene pool of antigen blood of Yakutian cattle]. Novosibirsk: Rossiiskaia Akademiia Sel'skokhoziaistvennykh Nauk, Sibirskoe Otdelenie, Yakutskaia Sel'skokhoziaistvennaia Akademiia.

Jobling, M. A. and Tyler-Smith, C.
1995 Fathers and sons: the Y-chromosome and human evolution. In *Trends in Genetics* 11, 449–456.

Kantanen, J., Ammosov, I., Li, M-H., Osva, A. and Popov, R.
2009a A cow of the permafrost. In *Sakha Ynaga – cattle of the Yakuts.*(Annales Academiae Scietiarum Fennicae. Humaniora, No. 355), ed. L. Granberg, K. Soini and J. Kantanen, 19 –39. Helsinki: Finnish Academy of Science and Letters.

Kantanen, J., Edwards, C. J., Bradley, D. G., Viinalass, H., Thessler, S. et al.
2009b Maternal and paternal genealogy of Eurasian taurine cattle (*Bos taurus*). In *Heredity* 103, 404–415.

Kopoteva, I. and Partanen, U.
2009 A historical excursion to northern Sakha. In *Sakha Ynaga – cattle of the Yakuts* (Annales

Academiae Scietiarum Fennicae. Humaniora, No. 355), ed. L. Granberg, K. Soini and J. Kantanen, 75 –115. Helsinki: Finnish Academy of Science and Letters.

Lai, S.-J., Liu, Y.-P., Liu, Y.-X., X.-W. and Yao, Y.-G..

2006 Genetic diversity and origin of Chinese cattle revealed by mtDNA D-loop sequence variation. In *Molecular Phylogenetics and Evolution* 38, 146–154.

Li, M.-H., Nogovitsina, E., Ivanova, Z., Erhardt, G., Vilkki, J. et al.

2005 Genetic contribution of indigenous Yakutian cattle to two hybrid populations, revealed by microsatellite variation. In *Asian-Australasian Journal of Animal Sciences* 18, 613–619.

Li, M. H., Tapio, I., Vilkki, J., Ivanova, Z., Kiselyova, T. et al.

2007 Genetic structure of cattle populations (*Bos taurus*) in northern Eurasia and the neighbouring Near Eastern regions: implications for breeding strategies and conservation. In *Molecular Ecology* 16, 3839–3853.

Mannen, H., Kohno, M., Nagata, Y., Tsuji, S., Bradley, D. G. et al.

2004 Independent mitochondrial origin and historical genetic differentiation in North Eastern Asian cattle. In *Molecular Phylogenetics and Evolution* 32, 539–544.

Nei, M., Tajima, F. and Tateno, Y.

1983 Accuracy of estimated phylogenetic trees from molecular data. In *Journal of Molecular Evolution* 19, 153–170.

Partanen, U. and Kantanen, J.

2009 How a cattle breed became the object of conservation. In *Sakha Ynaga – cattle of the Yakuts.* (Annales Academiae Scietiarum Fennicae. Humaniora, No. 355), ed. L. Granberg, K. Soini and J. Kantanen, 147 –168. Helsinki: Finnish Academy of Science and Letters.

Payne, W. J. A. and Hodges, J.

1997 *Tropical Cattle: origins, breeds and breeding policies.* Oxford: Blackwell Science.

Perret, J., Shia, Y.-C., Fries, R., Vassart, G. and Georges, M.

1990 A polymorphic satellite sequence maps to the pericentric region of the bovine Y chromosome. In *Genomics* 6, 482–490.

Soini, K. and Partanen, U.

2009 The golden stock. In *Sakha Ynaga – cattle of the Yakuts.* (Annales Academiae Scietiarum Fennicae. Humaniora, No. 355), ed. L. Granberg, K. Soini and J. Kantanen, 169 – 188. Helsinki: Finnish Academy of Science and Letters.

Stammler-Gossmann, A.

2009 Negotiating the indigenous status in the Russian Federation. In *International Journal of Circumpolar Sociocultural Issues*, vol. 3, number 3, 7–51.

Taberlet, P.

1996 The use of mitochondrial DNA control region sequencing in conservation genetics. In *Molecular genetic approaches in conservation*, ed. T.B. Smith and R.K.Wayne, 125–142. Oxford: Oxford University Press.

Troy, C. S., Machugh, D., Baile, J. F., Magee, D. A., Loftus, R. T. et al.

2001 Genetic evidence for Near-Eastern origins of European cattle. In *Nature* 410, 1088–1091.

Ward, T. J., Skow, L. C., Gallagher, D. S., Schnabel, R. D., Nall, C. A., Kolenda, C. E. et al.

2001 Differential introgression of uniparentally inherited markers in bison populations with hybrid ancestries. In *Anim Genet* 32, 89–91.

12

The symbiotic human animal relationship: An artistic investigation of Yakutian cattle

Anu Osva

Artist

ABSTRACT

In spring 2005, a multidisciplinary research team from Helsinki University and MTT Agrifood Research Finland conducted a field study in the Eveno-Bytantay district of the Sakha Republic in the Russian Federation. The goal was to investigate possible socio-economic risks connected to the preservation of endangered Yakutian cattle in three remote, Siberian villages. Yakutian cattle has survived only in these three villages as a population of 1000 heads. One member of the team was an artist with scientific background in animal breeding. She worked with the research team, interviewing people and drawing, painting and photographing the cattle. Working among the cattle made it possible to get to know the cattle from up close, to understand their characters and temperaments. The main part of the artistic work was done later in Helsinki. The outcome was an artistic project *Yakutian Cattle – Exploring Expedition to Siberia in the 2000's* . It includes an exhibition, a documentation, and a description of cattle keeping practices on daily level over seasons in the extreme environment of the Eveno-Bytantay district. The paper gives an overview of the project. Symbiotic relationship of humans and cattle in these Siberian villages, our perceptions on animals and animal-human relationships are discussed.

Keywords: art, art and science, Yakutian cattle, DNA, genetic art, human-animal relationship

BACKGROUND AND CONCEPT

In spring 2005, a research team from Helsinki University and MTT Agrifood Research Finland conducted a field study in the Eveno-Bytantay district of the Sakha Republic in the Russian Federation. The goal was to investigate possible socio-economic risks connected to the preservation of endangered Yakutian cattle in three remote villages: Sakkyryr, the administrative center, population 1750 with 320 heads of cattle, Kustur, a village about 100 km north of the administrative center, population 750 with 470 heads of cattle, and Dzhargalakh, a village about 100 km south of the administrative center, population 280 with 100 heads of cattle.

I had joined the research team 8 months earlier as an independent partner and artist with the intention to work on this project. My personal interests were in the biological and genetic aspects of Yakutian cattle. I was also interested in the cultural

importance of these animals and in animal husbandry in general. These concepts were not clearly organized research themes, but acted more as an orientation method for me as I faced people and cattle in the harsh circumstances of Siberia. On a personal note, cattle have played an important role in my life from the age of 11 when I learned to milk, then on through university when I studied animal breeding, and later when I worked as a researcher. The Yakutian cattle project represented a challenge that was different than what I had encountered in my previous work, and I will discuss these issues in this paper.

In Finland there is a tradition of scientific expeditions to Siberia. These mainly occurred in the 19th and early 20th centuries, and the majority were conducted by researchers studying the origin of the Finnish people and the Finnish language. The researchers who conducted these expeditions were from different disciplines and most of them kept detailed diaries that took note of everything they saw and all the interactions with the various peoples that they encountered. Among the most famous of these explorers was Gustav John Ramstedt, an ethnographer who studied Turkish languages and later served as Finland's first ambassador to Japan. He also authored the wonderful *7 travels to the East* (Ramstedt 1951), which we read before leaving on our journey to Siberia. During our stay in Kustur, we met a veterinarian and the first thing he told us was that he had read Ramstedt. At that moment, I understood that we do not only seek our own history and identity in Siberia; we also leave our mark there. We can feel positive about some of these things that we leave behind, yet others are of a more destructive nature.

During our time in Sakkyryr, Kustur and Dzhargalakh, I worked with the research team, interviewing people and documenting our work through photography. Painting among the cattle made it possible to get to know these animals up close and to understand their characters and temperaments, and the cattle also came to accept me as a member of the herd. The main part of the project was completed later in Helsinki. The outcome of this process was an art project, *Yakutian Cattle – Exploring Expedition to Siberia in the 2000's*. (Osva 2007)

EVERYDAY LIFE WITH YAKUTIAN CATTLE IN THE EVENO-BYTANTAY DISTRICT

During our stay I learned many details that shed light on the lives of Yakutian cattle and the raising of these animals in the villages. Below are some of my observations.

Cows The cows calve in spring. During the first two months after calving, the cows' milk is reserved solely for her calf. Most of the milk is produced in summer and when the cold sets in during winter, cows usually stop giving milk. Still, if milking is continued a cow can give 1–2 liters/day in February. The normal yearly milk yield is approximately 1500–2000 liters. Cows are milked 2–3 times during the day; teats are small and udders are hidden to protect them against cold.

Milk fat content is high (5–10%). The meat is marbled and the cows gain weight very quickly in summer. The animals are strong, healthy, and resistant to brucellosis[1]

[1] brucellosis: a bacterial disease typically affecting cattle causing miscarriage (the genus Brucella, in particular *B. abortus*). The Brucella bacteria can be transmitted from cattle to humans and causes

and even tuberculosis, a fact I learned through talking to several veterinarians, agronomists and researchers. People in this area sometimes contract tuberculosis, but cattle never do. It should be noted that although the cows are robust, they do have mastitis[2].

In these villages cows live much longer than they are normally allowed to do in modern industrial husbandry. They are kept as long as they are able to calve, often until they reach 15 years of age. In some cases the animals are allowed to live even longer, as the cow represents a memory of a late grandmother who had passed this animal on to her grandchild.

Cowsheds Cowsheds are built of timber and insulated with cow manure. There is a clear resemblance between the cowsheds and traditional Yakutian houses. Before Yakuts started to build Russian style log houses they actually lived in houses such as these, covered with clay on one side and manure on the other side, and used the manure covered side of the house as a cowshed.

Meeting cows on the village roads Cows move freely about the village. The animals are accustomed to living in the cold, walking alone to the watering spots outside the village, and returning to their home yards by themselves. They are also social and friendly, even the bulls were peaceful during our visit. Despite the fact that they all belong to the same breed, the differences of the individual cows in these villages are striking. The cows are distinct characters and the villagers, of course, give each of them a name of their own.

Grazing in summer Grazing lands are closer to the villages than the hay areas. But some families take their cattle to summer grazing areas, which can be as far as 60 km away from the village.

Hay making Cows do not need any other feed than hay, and during the various difficult times of change in Russia they truly did have nothing else to eat. The permafrost and northern location hinders hay cultivation, and it can only be harvested from natural meadows. The distances from the meadows to the settlements are long, and haymaking and transport is hard work. This task represents a common effort for villagers, and it is organized by families, local institutes and village leaders. Almost every family participates in haymaking in one way or another. In autumn, cattle are slaughtered or allowed to live through the winter on the basis of the hay crop.

Winter During very cold periods that can last for weeks (−40C° to −50 C° and below), cattle are kept inside all day, though they are taken to an ice hole to drink every second day. Yakutian cattle can survive on a small amount of food and water. Over the centuries, these cattle have faced many harsh conditions and have survived

undulant fever in humans.

[2] Bovine mastitis: infection in cow udders most often caused by staphylococci. In this condition the milk coagulates and can not be consumed by humans.

long periods of cold and hunger in winter. These conditions have been part of the forces that have molded the breed into what it is today.

Families raising cattle I was told of the important role of elderly women in advising younger women in raising cattle. During my stay I met busy young women tending to cattle and observed gender-based differences in everyday milking, feeding and other labor. It is common that men help in daily routines, but this is not true for every family. The role of cattle in a given family economy varies greatly. Cows are kept to provide families with milk and meat. Some families sell milk and earn extra income, yet for others cattle husbandry is the main source of income.[3]

HUMAN-ANIMAL RELATIONSHIPS

Here I will describe my thoughts on the aspects of human and animal life and interaction that interest me and how these have become part of the framework for this art project.

How we think about animals All religious literature contains descriptions of how humans and animals live together. In Genesis we can read: "And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him; male and female created he them. And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth. " (The Bible, King James Version)

Philosopher René Descartes wrote of animals in his *Discourse on the Method*, first published in 1637. I refer here his text on anatomy (Part V, 7th paragraph) where he describes circulation of the blood, heart, lungs, muscles, nerves, brains, and all the various functions that he observed in living creatures. He sees the analogies in human and animal bodies. But what makes these bodies move? He had previously discussed ideas, external objects, truth, dreaming and senses, and deduced the soul to be distinct from the human body and immortal. He also saw the soul as the reason for the existence of the human mind. He concludes that in living bodies there are 'animal spirits' keeping blood circulating and the muscles working, yet he states that animals do not have souls. He saw the proof of this in the lack of understandable language and inability of animals to change behavior according to acquired knowledge. After a rather fantastic anatomical text, he defines animals as mindless living machines (Descartes 1637). In the 19th century after Charles Darwin published his theory and provided practical evidence of evolution, it was no longer possible to distinguish animal and human nature in the way that Descartes had done. But we continued to ask questions; do animals have a soul, can animals use tools, do animals have feelings, can they talk, do they know they exist? This list of questions

[3] See Granberg and Kopoteva (2009) and e.g. Granberg in this volume, for more information on rural village economies.

could go on and on, and behind these questions we often find reflections of anthropocentric belief systems, which have most obviously affected not only our perceptions of animal nature, but also the orientation of our research aimed at understanding animals and their behavior.

Late in the 20th century an expansion occurred in research on human-animal relations[4] (e.g. an article by Sanders [2006] and a comprehensive encyclopedia by Bekoff [2007]). We now have a better understanding of human-animal relationships, as well as of the nature of animals in general. We also have a better view of animal consciousness, and how their personalities, emotions, intelligence, and memories are expressed, and how animals are able to communicate in a complex way with each other and with humans (Aaltola (2004), Singer (1991) e.g. Takakura, Stammler, F. in this volume). All this has led us to see both animals and ourselves as inhabitants of planet Earth who are tied together in a complex manner. The borders built in ancient times between the different natures of humans and animals are diluting and this makes way for new kind of cohabitation and common existence. However, in practice we are far from these ideals.

Role of animals in society Today, highly automated indoor production systems keep dairy cattle, pigs, and poultry out of public sight, and marketing systems finalize the impression of the nonexistence of these animals in our society. What follows is that the relationship between people and animals becomes tenuous and abstract. There is a need to increase research on the social function of animals, as animals are an integral part of modern societies, as all contributions in this volume show (see also Tovey 2003). I found the concept of co-evolution, which is described in this way: "… agri-ecology refers to the reliant co-development or co-evolution of society and natural factors. It is recognized that farming systems essentially result out of co-production i.e. the ongoing interaction, mutual transformation and dependency between man and nature, that is between the social and the natural." (Marsden 2003, pp. 34–35). In the Eveno-Bytantay district these theories meet an interesting analogue on practical level.

Though in western societies we seem to have lost some or most of our connection to cattle, the cultural meanings tied to these animals are deep and rooted into the philosophical and religious traditions of humankind. This may still be understood through the role of cattle or cattle products in cultural feasts and through analyzing different belief systems. Bulls, cows, calves, milk and many cattle related customs are elements of human identity and historically a part of national identity (e.g. Stammler, A. in this volume).

Humans and animals – what we see in the face of the other According to research on American cattle herders (cow/calf ranchers in beef cattle production), people build up emotional ties with their animals. These ranchers, mainly men, know their animals by sight and as individuals with personalities. The men avoided

[4] Clinton Sanders briefly outlines the history of sociological human-animal research. Marc Bekoff is the editor of an encyclopedia of human –animal relation research numbering 1632 pages in 4 volumes.

causing the animals unnecessary pain during the management of the business, and they had emotional skills that helped them cope with contradictory situations that arise in the context of raising animals for food. One of interviewed ranchers says "If you talk to most ranchers, and if they are honest with you, its more than just an economic thing, there's an emotional tie there, that's because they (cattle) are part of your lifestyle, most people don't talk about it, but it's there." (Ellis 2007) But can this be true for automated dairy cattle farms?

In context of art, *anthropomorphism* must be mentioned. One area of anthropomorphism is the placing of human characteristics in animals and plants. Almost anything can be subject to anthropomorphism, and it is a way of thinking that is very common and typical to us as humans. I try to avoid falling into anthropomorphic thought both in making artistic choices and when interacting with cattle.

An animal is like a mirror. In this mirror we see 'the other'[5] through our human world – through our senses, perceptions and experiences. Think about horseback riding or the sport known as 'agility' (a sport with human-dog pairs). These sports bring people and animals into a close mutual learning process where both parties learn new ways to work together. Humans and animals learn from each other, and they also teach each other, as Vuojala-Magga shows in the case of humans and reindeer in Finland (this volume). Donna J. Haraway (2008) calls the concept in this situation the 'contact zone.' In this 'contact zone' we face animals, even though the unknown will always be present. When painting a portrait of a cow I'm basically revealing something about my perceptions of this individual cow while at the same time showing some of my thoughts about cattle in general. In this process I have to rely on my experiences in the 'contact zone.'

ART PROJECT

Yakutian Cattle – Exploring Expedition to Siberia in the 21st Century *Art and science* or *art&sci*[6] is an interdisciplinary approach, where artistic and scientific practices meet. It is an approach that enables an artist to work and interface with the world of scientific research with all the technical and other methods that make up the scientific process. For researchers, art&sci means shared observations and the opportunity for new viewpoints into their world of research. Scientists also value the possibility to create together with artists artworks that enable an audience to experience some of their research observations, conclusions, or works in progress. In my case, I had both of these approaches available in my own head. I have a university degree and research experience in animal breeding and animal genetics, and during my studies I learned to think as a scientist and how to use the tools necessary for research. I also learned to look at the world through the perspective of life sciences. I decided to take this training with me in my artistic work. This led me to contemplate the nature of human DNA and the philosophical and ethical questions of genetic manipulation and biological innocence. I also recognize that research and scientific knowledge play a fundamental role in our modern, western economy as well as in

[5] Facing animals always includes the concept *'the other'* known from gender research and philosophy.

[6] Art and Science or art&sci approach, see da Costa & Philip 2008, Sommerer & Mignonneau 1998.

our culture and worldview. These two issues – my personal history in science and the larger role of science in our culture – led me to view the world of science and research as an important companion discipline to my artistic work.

The key artworks in the project *Yakutian Cattle – Exploring Expedition to Siberia in the 21st Century* are nine portraits of the cattle, three life-size paintings of the cattle, the paintings Siberian Sky and 9 Paths, and an approximately 25 meter long chain of plaster spheres.

The nine portraits present nine Yakutian cattle, both cows and heifers. Portraits are hung on the wall at the eye level of the viewer. In the faces of the cattle one sees the present moment and reflections of their genome, as well as the long history of co-evolution with humans. The portraits are in the same space as *Mother's Pearls*, which shows genetic information in a very short sequence of the mitochondrial DNA of Yakutian cattle. Mitochondrial DNA is inherited and transferred to a descendent in the cytoplasm of the mother's egg cell. An area of mtDNA, which can have four types of sequences (T, T2, T3 and T4), was examined. The existence of the T4 type in Yakutian Cattle populations is a sign of the uniqueness of this cattle that has been discovered through modern biotechnological methods. (Kantanen et al. 2009). I have transformed the genetic code in T4 into a visible form. Each plaster sphere refers to a nucleotide and the size of the sphere portrays what base is in question (a,t,c or g). The plaster spheres reflect in green on the wall, except for three spheres, which reflect in red. The red reflecting spheres show this to be special T4 type sequence (Kantanen, personal communication). T4 is possibly derived from an ancient East-Asian Wild Ox population, or it is a mutation that does not exist in Europe (Kantanen et al. 2009, see Kantanen in this volume). We do not know yet, but these genetic signs can break open the symbiotic history of Yakutian cattle and humans and tell us how and where people have wandered with their cattle. Viewers in the space between pearls and portraits are the third part in this work.

Cattle, and all living beings, are the outcomes of their genomes and of the environment where they live. I used this as one of the starting points in the work *Siberian Sky*, which is partly covered by a bovine DNA. The work *9 Paths* shows the variation in the mtDNA sequences of nine head of Yakutian Cattle (Kantanen, personal communication). The painting refers to genetic paths derived from ancient bovine ancestors to the present living animals.

Siberian Sky and *9 paths* are presented together with almost life-size paintings of Yakutian cattle. In this series of three paintings called *Co-travelers* one can see how cattle are growing out of white, wide and heavy brush strokes or, if one would like to interpret the pictures in another fashion, out of the harsh climate and barren soil. The elements combined in *Co-travelers* refer to the long companionship between humans and cattle. We can ask 'What is our responsibility for the lives of our companion species, species which do not exist wild in nature?'

When our Yakutian colleagues visited my studio in Helsinki, they wanted to place themselves for a photo between the *Co-travelers*, in the middle of 'their' cows and bulls. I could see how proud they were of their cattle. I recognized that the cattle are co-travelers for these Yakuts; they are an integral part of their identity. The Yakutian cattle art project has been exhibited in several places and I have given many presen-

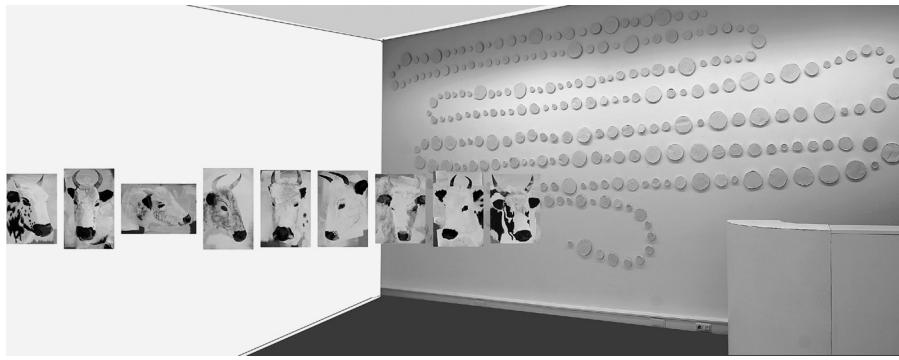


Fig. 1. Anu Osva *Jakutian Cattle, 9 Portraits, 2007*
Oil on canvas, Avg. 60x40 cm

Anu Osva, *Mother's Pearls 2007*
Plaster spheres, acrylic color
About 25 m
Represents genetic information in the mitochondrial sequence T4, found in Yakutian cattle (Kantanen, personal communication), Kantanen et al. (2009)). Each nucleotide is marked with one of four different size plaster spheres that refer to four different constituent bases of DNA, adenine, guanine, cytosine and thymine (the basic elements of genetic information in DNA). Bases (i.e. spheres in this work) that make this sequence T4 type are marked with red glow, other bases (i.e. spheres) reflect green on the wall.

tations on it. The unique look of the cattle, the location of the villages by the Verkhoyansk Mountains, and the co-evolution of humans and cattle in these harsh territories fascinates people everywhere and makes them remember their own disappearing native cattle breeds.

REFERENCES

Aaltola, E.
2004 Eläinten moraalinen arvo [Moral value of Animals, translation AO], Tampe Tampere: Vastapaino.

Bekoff, M. (ed.)
2007 *Encyclopedia of Human-Animal Relationships – A Global Exploration of Our Connections with Animals.* Westport, Conn.: Greenwood Press.

da Costa, B. and Kavita, P. (ed.)
2008 *Tactical Biopolitics, Art, Activism, and Technoscience*. Cambridge: MIT Press.

Descartes, R.
1637 Discourse on the Method of Rightly Conducting one's Reason and Seeking Truth in the Sciences, Part V, 7th paragraph, HTML version by Al Haines. http://www.gutenberg.org/files/59/ (accessed 22 November 2008).

Ellis, C.
2007 "Negotiating Contradiction: Human-Animal Relationships in Cattle Ranching" *Paper presented at the annual meeting of the American Sociological Association, TBA, New York, New York City*, Aug 11, 2007 http://www.allacademic.com/meta/p183099_index.html (accessed 19 November 2009).

Granberg, L. and Kopoteva, I.
2009 Changing the Production System. In *Sakha Ynaga – cattle of the Yakuts.*(Annales Academiae

Scietiarum Fennicae. Humaniora, No. 355), ed. L. Granberg, K. Soini and J. Kantanen, 117–146. Helsinki: Finnish Academy of Science and Letters.

Haraway, D. J.

2008 Training in the Contact Zone, Power, Play, and Invention in the Sport of Agility. In *Tactical biopolitics : art, activism, and technoscience*, ed. B. Da Costa and K. Philip, 445–464. Cambridge: MIT Press.

Kantanen, J., Ammosov, I., Li, M.-H., Osva, A. and Popov, R.

2009 A Cow of the Permafrost. In *Sakha Ynaga – cattle of the Yakuts*.(Annales Academiae Scietiarum Fennicae. Humaniora, No. 355), ed. L. Granberg, K. Soini and J. Kantanen, 23–28. Helsinki: Finnish Academy of Science and Letters.

Marsden, T.

2003 Redefining a Political Economy of Agri-food and Rural Development: Some Explorations into Agri-ecology. In *Rural Development as Policy and Practice*. SSKH Skrifter 16, ed. Kjell Andersson et al., 23–41. Helsinki: University of Helsinki.

Ramstedt, G.J.

1951 *Seitsemän retkeä itään.*(*Seven Journeys Eastward 1898–1912)*. Porvoo: WSOY.

Sanders, C. R.

2006 The Sociology of Human-Animal Interaction and Relationships, H-Net – H-Animal Discussion Network. http://www.h-net.org/~animal/ruminations_sanders.html (accessed 25 May 2006).

Singer, P.

1991 *Oikeutta eläimille* [Animal Liberation]. Helsinki: WSOY Porvoo.

Sommerer, C. and Mignonneau, L. (ed.)

1998 *Art@Science*. Wien: Springer-Verlag.

Tovey, H.

2003 Theorizing Nature and Society in Sociology: The Invisibility of Animals. In *Sociologia Ruralis* Vol 43: Number 3, 196–215. Oxford: Blackwell Publishing http://dx.doi.org/10.1111/1467-9523.00241

The Bible, King James Version, Genesis 1: 26, 27, 28. http://www.biblegateway.com (accessed 14 December 2009).

Animal diversity and its social significance among Arctic pastoralists

Florian Stammler

Arctic Centre, University of Lapland, Finland &
Scott Polar Research Institute, University of Cambridge, UK

ABSTRACT

Earlier studies have classified the importance of animals for pastoralists according to the animals' level of domestication, size and economic value, and have come up with a categorization of small stock and large stock. According to this model, people aim to 'convert' their animal property upwards on the ladder of hierarchy and prestige, focusing on large stock as the most important capital. Reindeer pastoralism confronts this with a focus on reindeer as the only pastoral animal in most cases, which calls into question the usefulness of such a model in the Arctic. I suggest including wild animals alongside domestic ones in the study of animals' significance for pastoralists, and omitting the distinction between mono-species and multi-species orientation in pastoralism. Instead I suggest as a starting point analyzing the intimacy of partnership that humans have with animals. The human role in the environment among pastoral people is shaped in a complex process of domestication. The example of Nenets reindeer and Sakha cows shows, how a developing closeness between pastoralists and animals can reach a level that I call symbiotic domesticity. By identifying 'niches of significance' and hierarchies of prestige and analyzing how various animals fill these niches among two groups in the Arctic (Nentsy[1] and Yakut (Sakha) -Eveny), I suggest a framework for study that enables a better comparison of the social significance of animals beyond boundaries of species or region. Among the findings for the cases analyzed are that the economic significance of animals is less stable than their social significance, as pastoralists and hunters readjust the former more quickly in response to changes in their surroundings, while they retain the latter as a system of social order. This encourages us as anthropologists to investigate the principles of cultural continuity, which have been somewhat out of fashion because of the recent boom in studies of cultural change.

Keywords: animal significance, pastoralism, species-diversity, Yamal-Nentsy, Sakkyryr Sakha-Eveny, cross-cultural analysis

[1] I prefer to use this ethnic group's own ethnonym in its common form: Nentsy is the plural form for the members of the group. Nenets is the singular as well as the adjective form. For the other group, I shall use Sakha as their own ethnonym, while using the Russian 'Yakut' as adjective, and 'Yakutian' as the adjective related to their region, the Republic of Sakha (Yakutia).

INTRODUCTION

The interest of humans in animals is essentially connected to our interest in ourselves, as was noted in the introduction to this volume. In this concluding chapter, I shall show with ethnographic material from two cases in the Arctic how human-animal relationships shape what humans are. The study of the social significance of animals across modes of production, livelihoods, and societies, in a way that Tapper (1988) explored in his seminal paper twenty years ago, proves to be still relevant in the early 21st century. The concept of symbiotic domesticity put forward in this paper sees humans and animals as equal partners in a total environment encompassing social and human components, thus paying more attention to animal agency as well.

No anthropological contribution survives academic scrutiny without clear definitions. While I risk missing some significant philosophical considerations by narrowing down the crucial terms in this article, I find it useful to define the social significance of animals as a process of conversation[2] in which animals give meaning to groups and individual humans through particular characteristics and practices based on them. Similarly, humans give meaning to and influence animal livelihoods through culturally embedded engagement with animals as one component in an environment that I would like to call a total social phenomenon in the sense of Mauss (1924).

After the following theoretical section I shall focus on two Arctic groups and:

a) show how 'symbiotic domesticity' as the daily-enacted closeness between humans and animals shapes human and animal persons, as well as the human perception of the environment,
b) analyze which and how 'niches of significance' for the society are occupied by the various animals in a society,
c) analyze the importance of animal diversity for exchange, prestige and mobility in the pastoral society and thereby contribute to an understanding of the relative positions of the various animal species in their social and economic dimensions in a human community,
d) argue against Arctic exceptionalism. The Arctic is not a single area where the only pastoral livelihood is monospecialised reindeer herding, but can rather be conceptualized as one of the world's diversified pastoral regions, inviting comparison along particular topical lines.

SYMBIOTIC DOMESTICITY: THEORIZING THE 'CLOSENESS' OF HUMANS AND ANIMALS

Under one common analytical umbrella, we can see the relationships between people and animals as falling along a continuum of closeness between the two. When one migrates with a team of harnessed reindeer in a big herd, it becomes obvious that domestication is a truly reciprocal symbiotic process involving both humans

[2] Tim Ingold (2005) has used the term 'conversation' before along similar lines, referring to the North as a conversation.

and animals. As argued elsewhere (Beach and Stammler 2006), it is by far not always clear who domesticates whom, just as it is unclear who follows whom during migration. In the following ethnography I shall show, for example, how reindeer through their skill in moving in the tundra induce their perception of the land and navigation through it onto their herders. This continuously changing symbiotic process is the essence of a relationship of closeness between humans and their animals that I will call 'symbiotic domesticity', elaborating on the process of symbiotic domestication (Beach and Stammler 2006). As such it is never completely stable, and to sustain the closeness this symbiotic domesticity has to be permanently enacted. Otherwise, in the case of reindeer, the relationship loosens and the reindeer become feral (Takakura, this volume). If we assume such a continuous partnership, we can accommodate both wild and domestic animals, for the distinction is not always clear-cut in settings where humans use domestic and wild counterparts of the same species (lama and vicuňas in South America, reindeer in the Arctic), and people thus have relationships with hunted and herded animals alike.

At first glance it seems that the more domestic an animal is, the closer its relationship with people is and the greater its social significance, as Maj (2008) has argued for the Eveno-Bytantay region of Sakha in Eastern Siberia. Examples of this would be the dog or the horse for many. However, Tapper (1988) and hunter-gatherer scholars (Bird David 1990, Willerslev 2007) have rightly noted that relationships can be very intimate between hunters and wild animals, including spiritual ties. The animals are perceived as acting in response to the behavior of the hunters towards the masters of the game: e.g., the performance of rituals before the hunt. At a more general level, animals acquire symbolic significance as totems for a particular group – a representation discussed extensively in classical anthropology (Evans-Pritchard 1956, Levi-Strauss 1963). On the other extreme, the modern rancher, as Ingold (1980) and Beach (1981) have shown for modern reindeer herding, no longer has intimate relationship with the animals (see Mazullo, this volume), but exerts control rather than symbiotic domesticity through force and sometimes violence. This leads to animals being deprived of their personhood, a process referred to as "de-animation" by Vales (1994) and "bare life" (Reinert 2007) in their studies of slaughterhouses.

It is along these lines that in Ingold's (1980) view relationships between people and herded animals are ecological (caring for a herd and protecting animals in order to feed people), whereas relationships with tame animals are social. He suggests (2000: 61–76) that hunter-gatherers have relationships of equal partnership with their animals, whereas pastoralists have relationships of domination, and ranchers have relationships of pure control. Although this model is appealing because of its simplicity, my own research with reindeer herders suggests that it is hard to feed this model with unambiguous evidence, and reducing their relationship with animals to just control would be unfair to herders. As has been argued for domestication and herd-following as a reciprocal process negotiated between equal partners, herded animals have much more agency than this model suggests. For example, it is the animals that almost entirely dominate the everyday reindeer herding process among the Nentsy in summer. Humans follow them throughout a 24–hour cycle of escaping from mosquitoes against the wind, feeding, drinking, and resting. Resting at the

human camp site, it is the animals that decide when the resting time is over, and they slowly stand up and trot away to begin the next cycle. The herder structures the rhythms of his life according to the will of the animals. Along similar lines, Riesman (1977:102) tells how a group of pastoral Fulani in Africa could not live permanently around the mosque of their charismatic Islamic leader because the cattle refused to do so, which "is a reason against which, for the Fulani, there is no argument. Cattle are considered to be one of the most intelligent species of animals; it would be crazy to do something the cattle do not like."

From the preceding we can summarize as follows:

a) Wild animals are significant for their human users as a generic category at species-level, with importance as dead property in exchange relationships, for food consumption, and as spiritual partners of humans in an all-animate environment;
b) Herded animals are significant as a group: the herd, with economic, ecological and social importance for notions of wealth, prestige, herd aesthetics, composition, and shaping the relationships of humans with the natural, social and spiritual environment;
c) Tame animals acquire significance for humans as individuals, for personal relationships with particular people. In the case of domestic animals, the partners enact symbiotic domesticity on a day-to-day basis. This not only influences their ways of knowing and acting in the environment, but also contributes to shaping the personality of the human and the non-human person in the relationship. For analytical reasons, however, I suggest that sustaining and enacting symbiotic domesticity is different from a human relationship with tame animals. Firstly, the partnership of tame animals with humans is more dominated by humans than the more equal partnership in symbiotic domesticity. Secondly, as was argued earlier (Blench 1997:3), tameness can be achieved with completely wild animals and is more temporary, while symbiotic domesticity can be maintained only with animals that are already predestined for this constant partnership through a centuries-long process of domestication that has left its footprint in the animal's biological genetic heritage (Beach & Stammler 2006:8–9);
d) Feral animals are formerly tame animals that 'become wild' due to unenacted symbiotic domesticity. Through symbiotic domestication this 'hibernating' partnership can be re-enacted again.

SOCIAL SIGNIFICANCE AND SPECIES DIVERSITY

Pastoralists keep different animals for particular reasons of relevance for the society, and these reasons always have an economic and ecological dimension (see introduction, this volume). However, the emphasis in this paper lies on significance beyond the economic sphere. Animal exchange is among the most important indicators of social significance among all pastoralists, and the peoples of the Arctic are no exception (Stammler 2005, Chap. 5, Granberg et al 2006, Argounova-Low 2009). Therefore, it is of particular interest how animals occupy different niches of social significance

that are best visible when they are exchanged, either for other animal species (e.g., horses for cows) or for other animals of the same species (e.g., reindeer for reindeer). My concern in this paper is the functions of species diversification and the different niches of significance for each animal fulfilled in so-called 'monospecialised' nomadic pastoralist contexts. Besides reindeer herders, Khazanov mentions camel breeders in Arabia and the Sahara (1994:49) and specialized sheep breeders in Central Asia as examples of nomads with zero species diversification. To clarify this question empirically, a supposedly monospecialised group of Yamal-Nenets large-scale tundra reindeer nomads in West Siberia is compared with Sakkyryr animal husbanders of East Siberia, who diversify in reindeer, horses and cattle. Both groups are well known in the ethnographic record (Stammler 2005, Golovnev & Osherenko 1999, Takakura 2002 and 2004, Maj 2008, Granberg et al 2009), but my purpose here is slightly different in focus: the example of these two groups is used mainly to illustrate how symbiotic domesticity is enacted with different animals and how the social significance of animals works among different nomads as 'managers of animal diversity'.

SYMBIOTIC DOMESTICITY I: YAMAL NENTSY

The Nentsy have become the most prototypical pastoralists in the Arctic today, being exemplar for their nomadic ethos, for a supposedly pure pastoralist and monospecialised (Khazanov 1994) livelihood, where reindeer mean everything in all spheres of life. Nenets reindeer herders protect their animals from birth onwards, and reindeer, in turn, serve people as guides and teachers, as a means of transport, as sacrifice, as a vehicle for spiritual communication, and provide food, clothing and housing.

The best-known group, on the West Siberian Yamal Peninsula, have been migrating for centuries with their herds between the taiga (forest) and the tundra (treeless Arctic desert), covering distances of up to 1200 km yearly (Stammler 2005, Sasaki, this volume). Herd sizes vary between 20 and 5000 reindeer. There are other groups of Nenets nomads who have more localized migration patterns, covering not more than 100 km yearly (Stammler 2005, Yoshida 1997). Some of their herds have reached similar headcounts (3000) since the collapse of the Soviet Union, but traditionally fish have been more important to these less mobile herders. One important feature of the herding technology of Nenets nomads is that the herd is under human supervision 24 hours a day throughout much of the year, except in deepest winter.

Since the 17th century, being a mobile herder with a carefully composed herd has been the proud goal of almost every nomad in the area. Such is the *nenei ilgnana*, the real (Nenets) way of life. A good herd includes many 'unproductive' animals (see Yoshida 2005): trained transport animals, preferably castrated males, for pulling sledges / households, and 'dry' (non-productive) females for racing purposes, and a *minarei*, which is the leader of the herd and a spiritually important close partner of the head of the household.

It is in the daily contact between the people and the animals that symbiotic domesticity is enacted. Almost all year round, herders are busy training animals and being trained by their animals to know the land. Training is a mutual process in

which both humans and animals learn, as Vuojala-Magga (this volume) has described among the Sámi. Among the Nentsy, this happens during the daily roundup of the herd, the 'herd service' (*dezhurstvo*), which is done in 24–hour shifts, and the migrations with the household.

The mutual training and negotiation of the relationship with reindeer can be very well experienced when driving one's own sledge in a group of herders visiting a neighboring camp in summer. The travel plan is announced during the morning roundup of the herd, and the herders tell each other which animals they are going to choose for the day. Between two and five animals per sledge are chosen, representing a mix of experienced draft bulls alongside young energetic ones for training purposes. (I, of course, get well-trained old ones due to my lack of driving experience. As Alexei says, 'You don't give your new high performance sports car to somebody who hasn't driven for years'.)

The draft animals are also chosen according to the preferences of the reindeer. You would not be well advised to harness a team whose members hate each other. The skilled herders, therefore, know about the friendships among their animals and which ones complement each other well in character. Often the names of the reindeer reflect this character. For example, 'Hooligan' is a reindeer with a strong temperament that is difficult to manage. 'Yeltsin' is one that is big, slow and moody, often changing his mind. Knowing which temperaments of which draft animals go together well is an important skill in the human-animal partnership. For training purposes, often 'junior' wilder animals occupy the middle positions in the harness, so they are trained by the lead castrated bull on the left side. This way the other animals in the harness are trained not only by the herder, but also by their fellows, who know how to behave well in a harness and choose the right route for their human master on the sledge, while the latter learns about animal habits and the land through the preferences of the animals. Such everyday skills of herders show the significance of individual animal-persons for the everyday movement of people.

Once the draft animals have been harnessed, the remaining herders drive the rest of the herd slightly in front of the camp and to the right of the desired direction of departure. By doing so, they know that our departure will be more smooth and easy, as the harnessed reindeer pull first and foremost in the direction of their friends (the herd), rather than where their drivers want to go. The drivers' task is therefore to keep the animals constantly to the left of the herd. This is easier than keeping them to the right, as the steering rope is always on the left side in Nenets harnesses. During departure, we search together with the animals for a good route that the harness animals like: e.g., one that contains previous tracks, but which also leads in the direction in which we want to go. We have to lure the animals into the feeling of being on that track, until they get tuned into the direction of our destination and do not pull back towards the herd anymore. Once the herd is out of sight (and out of smell), we can safely move on.

The first harness and driver share the demanding job of negotiating the route among themselves and with the land. The following harnesses will trot more or less in the track of this 'path-maker'. However, while moving, all drivers will intimately enact their symbiotic domesticity with the animals by deciding on the pace and

micro-route. Reindeer have the capacity to check the condition of the terrain very carefully with their front legs. If the ground is too soft (boggy), they will choose a different spot. Moreover the density of shrubs influences the choice of the route. A sensitive driver and herder will let the animals make these choices themselves, because such details are hardly visible to the driver sitting behind on the sledge. His job is carefully to observe the reindeer's choices and thus learn about the conditions of every meter of the land as well as the reindeer's preferences. Thus, the herder decides on the general direction, and the reindeer choose the precise route. The exact pace of traveling is also negotiated in a process of symbiotic domestication: the herder will try to determine the general speed of travel, but as a good reindeer partner he is well advised not to exhaust his animals too much. They, in turn, have their own reasoning, wanting to stop here and there for a break, choosing spots with lots of fresh leaves (shrubs or grass) for a snack or creeks and ponds for a drink on the way.

As we approach the neighboring camp, our reindeer smell the neighboring herd from far away, and we notice how they understand where we are going. When the camp is in sight, they themselves increase the pace. Since we are going to stay for several days, we release the reindeer into the other herd for grazing immediately upon arrival. Neighbors who visit frequently even know how their animals integrate into the neighboring herd, since they socialize there as well.

After releasing the draft animals, the herders are keen to find out how I managed with the traveling and experienced the journey. Such a discussion happens not only because of the novelty of an anthropologist driving a reindeer sledge, but is part of most learning processes in Yamal-Nenets reindeer nomadism. First comes the experience, and after that the experience can be discussed and commented upon, and advice is given by senior to junior people. Such advice can also be given through story-telling with implicit messages. For example, one day I go with Zhenya to a trading post to trade some meat for bread. On the way we find a *khorey* (steering pole) on the river shore. We pick it up and take it back to the camp. Zhenya immediately guesses what has happened and says: "Sasha came here recently to get bread, and the workers invited him over for dinner. After heavy drinking, they brought Sasha to the other side of the river, where he had left his reindeer. He untied the reindeer, and fell asleep there on the sledge. When he woke up, he realized he was back in the camp." What happened was that the reindeer had taken him home on their own. Zhenya explains that they remember and smell the route by which they came, and they smell their home herd and camp. The implicit advice to me here is that once the reindeer know where to go, it makes sense to leave the detailed decisions on pace and route up to them, rather than wasting energy trying to impose senseless modes of travel on them.

What I want to show through these ethnographic sketches is the human-animal partnership on equal terms. It is constantly re-enacted, and both sides know the extent to which they can pursue their own agendas and when it is more reasonable to consider the reasoning of the other side. This example also shows how the human relationship with the surrounding land and the ways of knowing it are mainly instated through the relationship with the animals. At the herd level, this partner-

ship is enacted along similar lines when the herder studies the larger area and the seasonal cycle by learning how the herd as a group behaves in different situations on a day-to day basis. At the group level the general patterns of movement of different populations of reindeer profoundly shape their human partners' lifecycle and their ways of knowing the land. For example, nomads from the central Yamal Peninsula know the northern coastal areas only in summer and the forest only in winter. Therefore, under normal conditions they visit villages and towns only between early winter and early spring. Such is the 'contract' that people have agreed upon with their animal-partners. Therefore, we can say that this relationship with the animals also shapes people's relationships with each other. Thus, we see how the relationship of individual human persons as well as human communities with their surroundings is largely shaped by their symbiotic domesticity with individual animal-persons and animal communities (herds).

Animal diversity and exchange among 'monospecialised' nomads Khazanov (1994:63) has mentioned that animals can also acquire 'stereotypical importance' through over-emphasis in the ethnographic record. This is not only true of cattle in Africa, but, to a lesser extent, of Nenets reindeer as well. In spite of the fact that the partnership between human and animal persons is an important structural factor in life, the whole Nenets social-cultural-ecological system would not work with reindeer alone, just as most African pastoralists do not live from cattle alone. Most, if not all, of them also have either small stock (sheep or goats) or supplementary agriculture, hunt wild animals, or provide wage labor. It has been argued that these other stock species have economic significance only, while large stock have social and cultural significance as well. However, this assumption has been proved to be simplistic (Broch-Due 1990).

What replaces pastoral species diversity among monospecialised reindeer nomads? At first glance, fish and game among Nenets people seem to have mainly economic significance. However, not only are fish almost as important as reindeer meat for subsistence, but through familiarity with fish and interacting with fish populations in the lakes and rivers, people also shape their relationships with the thousands of water bodies of the tundra and with fellow fishermen, as well as with other herders. Nenets nomads with a great deal of fishing activity therefore have a profound knowledge of fish and maintain intimate connections with both the physical and spiritual spheres.

People know very well which fish like which places, and how fish migrate in the water, where fish stay in winter, and so forth. It is through fish that people find out about the characteristics of lakes. Shallow or boggy lakes where fish do not go are called 'dead lakes'. Other lakes that freeze completely to the bottom and therefore have no fish in winter are called 'dry'. Lakes or rivers with fish populations in winter are valued most and cared for. Particularly older people feel a certain responsibility for the fish population. Not only should the lakes not be over-fished, they also should not be under-fished. One explanation I got was that under-fishing in the end leads to a natural population crash of fish, because the population becomes too large and consumes all the plants in the lakes, the oxygen content of the water decreases,

and as a consequence fish cannot survive there. There were cases reported where all the fish in a lake died due to under-fishing. So people, together with fish, are responsible for keeping lakes healthy. Here too, the perception is that people together with animals maintain the environment in a healthy state.

The social significance of fish is important in the hierarchy of prestige among people and animals. Even though fish as a commodity enjoys broader popularity than reindeer meat, among the Nentsy fishing is clearly less prestigious than herding, which is in line with findings from other groups in the North, even those who have few reindeer (Argounova-Low 2009). One popular economic pattern therefore is the conversion of fish into reindeer[3].

On the other hand, less voluntarily, a shift from reindeer to fish can also occur in extreme situations such as reindeer epidemics, or exceptionally harsh weather conditions. Herders can then focus on fishing, which, in good years, provides a solid income with which reindeer can be obtained again. So just like small stock among multi-species pastoralists, fish in the northern Arctic setting allow one to rebuild one's herd quickly, but provide a less stable livelihood. Reindeer are seen as the supreme property, like cattle among the Nuer or Tswana (Comaroff & Comaroff 1991), and as a more reliable form of capital that can be 'stored' on the pasture.

In this way, I would argue that there are several similarities between the way fish are regarded among Nenets people and the way other pastoralists view small stock, the meat of wild animals, or agriculture:

1. Fish represent the lowest step on the ladder of prestige, being the most ordinary everyday food (Argounova-Low 2009: 491, 501). It is therefore used as an item for converting 'upwards' to reindeer. Subsistence-wise, it makes sense to exchange fish for meat in order to diversify the diet. But more important is the conversion to live animals. Some years ago, the terms of trade were one reindeer for a sledge-load of fish. This kind of exchange can also happen within families living together. In that case the reciprocity is more generalized.
2. Fish can also be used as an item in marriage transactions, though the bride price (*kalym*) is usually quoted and paid in live reindeer. But if the family of the bride agrees, part of the bride price can be paid in fish, or fish could be used to acquire reindeer. Fish can also be an add-on to the dowry that a young woman brings into her marriage. However, fish are clearly inferior to reindeer as an item of exchange in terms of prestige. Furthermore, a reindeer-fish exchange can never be entirely equal, of course, since fish are always exchanged as dead property (i.e., food), whereas reindeer are exchanged in numerous ways as live property. In this way Nenets nomads are indeed confined to one species of animal that can be exchanged for both dietary and social reasons. Therefore, I have argued earlier (Stammler 2005: 166) that reindeer have the significance of both small and large stock among these pastoralists. It is perhaps this preoccupation with live and domestic animals that has

[3] The concept of *conversion* comes from the economic anthropology of pastoralism and refers to the process of exchanging capital stored in the form of one animal to another animal. It is similar to converting from a less-valued to a more higher-valued currency. In our case, fish are the low-value currency, and reindeer the high-value currency.

led to the classification of Nenets as monospecialised pastoralists.

Significance and prestige We see from the significance of fish that even among these supposedly monospecialised Nenets reindeer nomads, other animals have not only economic but also social significance. The difference between fish and reindeer, though, is clear-cut, as is that between small stock and large stock among pastoralists with different domestic animal species. Like other wild animals fish are not significant on an individual level, but at the species level as another component of the animate environment. Although the fishing reindeer herders have not talked about the spirits of fish, and fish-related rituals, important fishing lakes are sacred, and especially people with few reindeer have an elaborate knowledge of the natural and possibly spiritual needs of the fish-environment. However, it is worth noting that more often than the fish themselves, it seems to be the spirit of the water body that is addressed, although I do not exclude the existence of masters of the fish similar to masters of the game among hunters.[4]

Attached to the lower step in the hierarchy of animal-prestige that fish occupy among the Nentsy is the lower level of mobility associated with fishing. Fishermen can stay from spring to autumn in one place on the tundra, and then move to a village on the shore or a major lake for the winter. This low level of mobility means lower prestige in Nenets society, too, because *nenei ilgnana* is the nomadic life. In many cases, less mobile tundra people do not have enough animals to move their whole households frequently or have health problems that prevent them from doing hard physical work. Therefore, fishing is a suitable activity for pensioners, or for households that do not have enough manpower to handle reindeer herds in a mobile way. In such households women also join in, working together with the men in fishing. Such people try to give their reindeer to relatives or friends for migration, and provide fish to the herders in exchange for their work.

Hunting is also, of course, practiced by the Nentsy, but the economic significance of hunting has decreased tremendously since the time of the Soviet Union. In the past, however, hunting was a highly valued activity, and there were Soviet state-employed hunters with plans to fulfill of a certain number of game animals per year. Like fishing, hunting used to be an activity which provided a way of 'converting upwards' to live reindeer property. Among herders the hunting of birds in spring and the hunting of the Arctic fox in autumn are still very important, because they are done collectively and provide a welcome occasion to meet friends, relatives and neighbors. When I first came to the Yamal area, there were as many 'hunting brigades' as 'reindeer herding brigades'. However, within a few years, all the 'hunters' had converted upwards and acquired reindeer herds. As of 2003, there were only 'virtual' hunters left, who were listed in all papers as hunters but were, in fact, all herders. This situation is also connected with the fact that among those Nentsy where I was, there is no wild reindeer business (unlike on the Gydan Peninsula), and the demand for and price of fur-bearing animals (sable, Arctic fox, wolverine, etc.) has plummeted since fifteen years ago.

[4] More research would have to be done to find out about fish-related spiritual practices in this respect.

This shows that within a few years, the economic significance of hunted animals changed completely, but the social significance has remained. People continue to invite each other to participate in the spring and autumn hunts. Since a growing number of Nentsy live in villages now, the hunt is also one of the prime reasons for village people to join relatives in the tundra. The stability of social significance also becomes obvious with reindeer: even though fish can be economically more important than reindeer, the Nentsy still associate themselves mainly with reindeer, which they consider to be the highest prestige animal and the supreme property.

These sketches of the relationships Nenets have with their animals show that they are managers of various animals, all of which have social significance. This includes managing wild stock through rituals addressed to the master of the game, proper consideration for the spirits of the fish and the water bodies, and other practices. However, only reindeer have personhood in individual partnerships, and symbiotic domesticity is enacted only between such animal persons and human persons. This is what makes the reindeer the supreme identity marker for the Nenets, like cattle for some African pastoralists, or the horse for the Sakha, as I shall argue below. The animal diversity mentioned above allows us to reconsider the stereotypical image of Nenets nomads as monospecialised reindeer pastoralists. Economically and socially, fished and hunted wild animals are also important to them, occupying niches of significance that among other pastoralists are occupied by small stock.

SYMBIOTIC DOMESTICITY II: SAKKYRYR

The reason for taking a comparative view of the Eveno-Bytantay district in the North of the Sakha Republic in Siberia (see Granberg, Osva and Kantanen, this volume) is that it is the only Arctic region with three species diversification in the pastoral economy. We know of such pastoralism with several animal species, including reindeer, in northern Finland as well, but there pastoralism is less mobile. Finns have been engaged in reindeer herding alongside agriculture and farming for centuries (Heikkinen 2007:312), as have the Sámi following their contacts with settlers starting in the 1700s (Aikio et al 2002: 54–58). A historical and contemporary comparison of these cases with the Eveno-Bytantay situation may be fruitful in the future, because in both cases multi-species animal husbandry developed after 1700 due to contacts of reindeer herders with agropastoralists. Several contributors to this volume and other authors have worked in Eveno-Bytantay (Takakura 2002 and 2004, Granberg et al 2009) earlier, but only Maj (2008) has shortly focused on analyzing the different niches of social significance for different pastoral animals.

The population in the Eveno-Bytantay area consists of two ethnic groups, after the incoming Yakut horse- and cattle pastoralists started fruitfully coexisting with the indigenous Eveny reindeer herders in the area in the 17th–18th centuries. Hunting and fishing are important as additional sources of food. This animal diversity makes the diet of the people more diverse than that of the Nentsy. In the following ethnographic sketches, I shall show how human-animal interaction is enacted in order to give some comparative insight to the Nenets case.

As remarked by several authors, the horse is the supreme animal and keystone species for the Sakha (Maj 2009), who already centuries ago invested a great deal of

time and effort preparing for horse races (Gabyshev 1966:16, quoting Syroshevskii). Training both horses and reindeer requires an intimate knowledge of the individual animals (Vuojala-Magga, this volume). Training, as I have shown in the Nenets example, can be regarded as the process of symbiotic domestication between the human and animal persons. Eveny and Sakha have developed such relationships with both horses and reindeer, as well as with cows, even though the main orientation of their pastoralism is still dominated by one animal, the other being supplementary.

Takakura (2002, 2004) has shown how daily interaction with animals is organized among horse– and reindeer herders in the region. We lack such detailed accounts (at least in the English and Russian language literature) concerning the personal relationships between cattle breeders and their animals in this region, and the few studies on cattle in Siberia of which I know (Crate 2006, 2003) do not devote the same attention to investigating the personal ties between humans and animals that is well known in the literature on African societies (Hutchinson 1996). Only a year ago, the first accounts with such a focus started appearing, such as Crate's (2008) paper, a short paper by Maj (2008), and Osva's paper in this volume, all of which are valuable first steps. In my ethnographic sketch I shall contribute to the effort in this direction, illustrating some of the features I have seen and experienced, mainly with two women who take care of cows in Sakkyryr.

Nina Vasilevna The head milker of the state cattle farm is an Eveny woman, Nina Vasilevna. Having worked as a milker since 1985, she says she has "raised many of the cows herself, seen them grow up". Therefore she has personal relationships with all of the cows, knows their names and temperaments and how to approach them during milking. Obviously, she has favorite cows and less favorite ones, those with whose character she is 'not compatible': "A cow's character develops depending on how you treat them from early on", she says. Therefore, she talks to the cows during milking a great deal. She has taught this approach to other younger milkers, too, including her own son Anatoly. Milking is a particularly close enactment of symbiotic domesticity with animals, a fact that has led Ingold (1980) to argue for a categorization of carnivorous and milk pastoralism, each of which has its own pattern of animal significance. I have shown that for the Nentsy Ingold's categorization may lead to misinterpretations (Stammler 2005: 165–166), but the example of cow milking in Sakkyryr, which is done by hand, shows the closeness of the human-animal relationship.

On the other hand, one can also notice that the farm on which Nina works is a state farm and the cows are the property of the Sakha Republic rather than of the local people. One day, I am told to arrive in the late morning for the milking. We wait for an hour, have a nice chat, and leave for home again when the cows do not turn up. Nina complains about the herder, who is not very reliable, but it later turns out that the cows had been there in the morning before we came, and had already gone back to the pastures. I am told that this would not have happened in a private setting.

During an evening milking session, sitting in the spacious *khoton* (cowshed), Nina

Vasilevna tells how during milking she often feels closest to herself, reflecting upon the essence of her existence and what she is supposed to do in life. It was during milking that she realized she has a spiritual inclination and a certain capacity to positively influence the health of people who are close to her. She therefore wants to go deeper into healing, although she definitely rejects the notion that she is a shaman. The 'real' shamans, she says, are those out there in the mountains. Later that day, as I am sitting in the farm's office, a fax arrives from Moscow, inviting Nina to an all-Russian congress of healing and alternative medicine.

Nina's example reveals how a close relationship with the animals helps a person to find an inner emotional balance. Being a single mother with a poor salary, she escapes from the hardships and problems of everyday life into a close partnership for at least a short time each day. Sometimes she tells her favorite cows about her problems, and even breaks down in tears while doing so. The cows are domestic animal-partners in a life where there are few human partners left. By enacting this partnership, she embarks on a journey into her own identity. Crate (2008:116) quotes her informants in Viliui Sakha as saying, "[C]ows are people with every human attribute except language". In the case of Nina Vasilevna it seems that it is this combination – the humanization of cows but their lack of verbal language – that makes them so important for her own personhood. There is both a positive and a negative interpretation of this process: from a negative point of view, cows may have a similar function to dogs for some lonely city people, where the animal is 'over-humanized' by the human partner because the latter needs this humanization, thus depriving the animal of its 'animalness' (see Ingold [ed.] 1988). But from a more positive perspective, one can say that the personhood of cows encourages humans to find themselves.

In either case, Nina Vasilevna's experience is a classical example of the social significance of animals for humans in terms of finding themselves, and it is important for what it reveals about her society as well. Considering what Mullin (2002) has said about animals and their lack of agency, Nina's story shows that animals do have agency in shaping human individuals and societies, but our anthropological interest often makes us anthropocentric. There are other cases similar to Nina Vasilevna's where, regardless of people's ethnic origin, close ties between cattle and people develop through many years of experience. Seeing this formation of ties as a mutual process of animals and people shaping each other is a better reflection of the true nature of human-animal relationships than seeing only humans as agents and animals only as the recipients of agency. This view qualifies the statement made by a city Sakha intellectual during fieldwork who claimed that, in general, for Eveny the cow is nothing but work.

Svetlana Dmitrievna Svetlana Dmitrievna is a single Sakha woman who makes most of her living from cows. She privately holds a herd of seventeen animals, of which six are milking cows, which is considered a large number. Like Nina Vasilevna at the state farm, she knows her cows extremely well. Her mother taught her to milk when she was five years old. But her engagement is not confined to milking, and she knows not only the cows, but also the whole herd as a social group,

including the oxen, the bull, the calves, etc. Her work includes the whole production chain and complete animal care, including veterinary services. Crate (2003:503) has described the importance of cattle for Vilui Sakha in the following terms: "[C]ows are not only *everywhere*, but they are *everything* to survival". I think both parts of this axiom may be slightly overstated; it represents the classical trap for the anthropologist focusing on one particular keystone species, which can lead to overemphasis on the importance of that species. In Crate's Vilui region, as well as in Eveno-Bytantay, the livelihood is connected with animal diversity and not mono specialization. Svetlana therefore has an exchange relationship with horse herder Sergei, who keeps a cow with calf in her *khoton*, and herds a horse for Svetlana.

In contrast to the state farm's two daily milkings, Svetlana milks her cows three times a day in summer. The morning milking is around 6:30, after which the cows spend a few hours relaxing in the yard. After the mid-day milking at 12:30, Svetlana releases the cows, which wander off to pastures close to the village. From there they come back around 7:30 pm, and if they do not return, Svetlana goes to collect them from the pasture. Heading out with her to the pastures, I experience how she knows and interprets the land surrounding the village. There are two different places where the cows may be, mixing with riding horses and other cows in the pastures. In a way that is reminiscent of a reindeer herder, Svetlana reconstructs the route of her cows according to her knowledge of the preferences of the leading animal. We go and search with the binoculars, and finally spot some animals behind dense shrubs, peacefully grazing. Coming closer, we realize that they are mainly horses, with only a few other cows scattered among them. We turn back towards the village and Svetlana is surprised that the cows seem to have chosen the second possible pasture spot, because she had seen the lead animal trotting off in the other direction. When we get to her home, it turns out that the cows had come themselves, waiting to be milked. Svetlana thinks this is how it should be, as the cows know their human partners and their timetable.

The milking process itself displays a similar kind of closeness of the human to the animal persons as in the state farm example. Svetlana knows exactly which cow has to be fed more just before or during milking, because they will be calmer then. Unlike Nina from the state farm, Svetlana does not bind together any of her milking cows' back legs to prevent them from kicking. But like Nina, she also has one difficult cow that she thinks has a character, which is too rebellious. She says that cow should be the candidate for the next slaughter, because the bad character must not be allowed to take root in her herd through similar offspring. A state farm milker would not think like this, as it is not in her competence to make husbandry decisions of this kind, since she does not own the animals herself. Svetlana's favorite cow's name is *Mais'ka*, the leader of her herd, who has a quite character.

Svetlana's relationship with *Mais'ka* seems to influence her relationship with the whole herd, perhaps in similar ways to the relationship of a Nenets reindeer herder with a *minarei* lead animal. In contrast with the state farm, Svetlana's *khoton* is small for the same reason that Crate (2003: 505) describes for Vilui: it is exactly tailored to the appropriate number of animals, small enough to be kept warm from the breath of the cows, but spacious enough to prevent the calves from being trampled. In a

smaller barn like that milking is much more pleasant and cleaner if the manure is tidied up immediately. Therefore Svetlana tries to hold a bucket under the cow when she notices that manure is going to be produced. If she does not succeed in time, she tidies up with a shovel right away. This level of care is very different from that on the state farm, where this kind of labor is divided between several workers. Svetlana, like Nina, says that the working with cows allows for emotional recovery from hardships.

In both of these examples the personal relationship with the animals is worth noting, clearly supporting emotional balance and satisfaction, and expressed through intimate knowledge and complete care. The practice of enacting symbiotic domesticity in these cases is very different from that of the Nenets nomads with their reindeer, obviously, but I would tend to suggest that the level of closeness is similar. Obviously, cows are much more 'tame' than reindeer, but in opposition to Maj's (2008) argument, I cannot see how the material on the relationship between people and cows that I have introduced in the previous pages supports the general equation that 'the more domestic the animal, the closer the relationship'. The symbiotic domesticity of human persons with reindeer persons is evident in Vitebsky's (2005: 277–279) account of the herder's relationship with his *uchakh,* or personal reindeer, with which the partnership goes as far as the reindeer's death being seen as mirroring human death or the reindeer sacrificing its life for the human partner.

Social significance beyond Sakkyryr The works of Crate (2008) and Maj (2008) emphasize the importance of cattle for Sakha ethnic identity. It is an ironic coincidence that the only region where the genetically unique Sakha breed of cattle survived the Soviet Union is the ethnically mixed region around Sakkyryr (Granberg et al 2006), where the Eveny population does not identify with Sakha ethnicity. However, it is likely that the unique combination of horse, reindeer and cattle husbandry in the region came about because of clear cultural preferences when the Eveny and Sakha people met in the 17th century. In fact, a Sakha intellectual in Yaktusk uses the cow to construct Sakha identity, reflecting on the same cultural argument that Diamond (2005:247) has made for the old Norse cattle breeders of Greenland: that they are irrationally culturally obsessed with cows. She says "in principle it is not rational to engage with cows at these latitudes. But we just desperately need milk, and that is why we Sakha do it. We cannot even start living without 'white food'" (Fieldwork, June 2008). This is in line with Crate's (2008:119) recent description of *uurung as* ('white food'). If the reason for the survival of cattle in these latitudes is people's preoccupation with *uurung as*, it is understandable why private cow breeding survives.

The majority of the cattle in the *ulus* (district) are privately owned (see Granberg, this volume) and cared for in small households that rely largely on networks of kinship and friendship to share the work load, as Crate (2003) has shown. This is in contrast to the Republican policy described by Granberg (this volume) of preserving Yakutian cattle genetically for reasons of biodiversity. In fact, local people like Svetlana and the regional chief of agricultural administration complain that the Republic's subsidy policy concerning Sakha cows does not make sense: seven million roubles are allocated for the animals of the state farm to maintain the genetic uniqueness

of Sakha cattle, but no subsidies whatsoever are paid for the milk of these animals. This is why Nina Vasilevna gets 6000 roubles per month (160 EUR at the time of fieldwork). “The scientists are not interested in milk,” says Svetlana Dmitrievna, “they want to increase headcounts, and they want the meat, which sells for a higher price than from normal cows". When they filed a request to the Republican Ministry of Agriculture asking what they should do with the milk, the answer was: “You can pour it on the ground, we don't care” (Fieldwork, July 2008). Considering the cultural importance of milk and 'white food' for the people, this negligence of milk is unjust, especially since it is seen as the reason why people in the past developed cattle breeding in this region in the first place and still continue to work hard to maintain it.

The way out of this dilemma is that all the cows on the state farm were registered in Svetlana Dmitrievna's private name, because private family farms get at least the normal subsidy for milk; Svetlana was supposed to re-funnel that money into the farm again. It is notable that all this happened under the eyes of and with the active participation of the regional chief of agriculture.

The contrast described above reveals the different perceptions of the socio-cultural significance of cattle on the ground among people who engage with them physically and people who engage with ideas and models about animals in culture and identity politics. In the different terms of the engagement, we see different human-animal partnerships: whereas at the ground-level it is a matter of individual human-animal partnerships and a match between human and animal character, at the level of the Sakha Republic it is a matter of the relationship between a particular 'breed' of cattle and a particular 'breed' of humans, i.e., the Sakha ethnic group. Socio-cultural significance at that level de-humanizes both the animals and the people, seeing them as manipulable parts of a system.

Animal diversity and exchange among ‘multispecialized’ nomads Most scholars agree that the diversity in pastoral animals in the Sakha Republic is the result of the Sakha migration, which began in central Asia and moved to the North in the late middle ages. Not only did the Sakha come with their horses and settle with their cattle on the flatlands and valleys, they also quickly acquired the role of linking different population groups and economies through trading. This was made possible by their relationships with multiple animals. Gogolev (2005, Chap. 3.1.5) argues that knowing these various animals and the land was their principal resource for this activity in the 19th century. They would arrive on horseback in places where the Tungus lived, trade furs for other goods, and exchange their horses for reindeer, which they would take back to the southwest in wintertime. There they would trade with the local Tungus, exchanging reindeer back for horses, on which they then would go back to central Yakutia (Vilui).

So we see that relationships with different animals and their exchange lie at the heart of the Sakha presence in the territory. Starting in the 17th century the Sakha settled in the Verkhoiansk region, preferably in river valleys and along meadows where their cattle could find good pastures. This is about the same time that large-scale reindeer pastoralism developed among the Nentsy. Sakha escaping from the Russian

Yasak-collectors pushed the Eveny up into the hills and mountains, where they stayed from spring to autumn, visiting the Sakha to trade (Sasaki 1998). Intensive alliances of the main 'dynasties' of nomadic Eveny in the mountains and semi-nomadic Sakha in the lowlands developed through the exchange of animals and trading (Ammosov, pers. comm. 2008). It seems that in the 17th century the Sakha did not possess reindeer of their own (Bakhrushin &Tokarev 1953:71f), and the use of horses by the Eveny seems to have been very limited. Rapprochement throughout the centuries, however, led to the mutual adoption of elements of each other's livelihoods.

Intermarriage before and during the Soviet times, which was also sustained through animal exchange, contributed to the increasingly symbiotic coexistence of the two ethnic groups in the region (Ammosov 1997). Marriage involved a bride price (*kalym*) and dowry (*pridanoe*). Tokarev (in Bakhrushin & Tokarev 1953: 76–79, 115) quotes a great deal of evidence for the large extent to which animals were exchanged, mainly horses and cattle; however, there is no mention of live reindeer as being part of these transactions. The dowry was lower than the bride price. It is interesting to note that, similarly to the case of the Nenets, fish could replace livestock as the bride price among poorer people. The reindeer was first exchanged in the form of products such as hides, alongside the furs of sables and other fur-bearing animals.[5]

During Soviet times this exchange practice was partially discontinued due to the collectivization of livestock, but the close interrelation between the three principal pastoral animals was institutionalized by the Soviet state farm (*sovkhoz*), which united all three pastoral animal activities under one umbrella, allocating partially overlapping grazing territories and regulating the seasonal movement of animals with their brigades (work teams). According to the *sovkhoz* director (Fieldwork, July 2008) it is particularly in winter that reindeer and horse herders live closest together and occupy the same areas with their animals. Maj (2008) shows, however, the diversity of such practices of interaction, including joint grazing in early summer.

In analyzing the relationship of the Sakkyryr people to their animals, it must be noted that both ethnic groups adopted animal transport from the other group for its own use centuries ago. Sakha started earlier to use reindeer in order to get to the winter pastures of their horses, and for hunting and fishing, the significance of which for men of any ethnic group we must not forget. In particular, the snow-sheep (*snezhnyi baran, chubuk, ovis nivicola*) is very popular, and successfully hunting it brings one great prestige in the community. The *chubuk* is so significant that it was chosen as the official logo of the Eveno-Bytantayskii *ulus* (district).

Yakut horses can survive the cold winter outdoors without additional hay by digging in snow-covered pastures. Since this is a hard winter-life for horses, they are not ridden in winter, and reindeer take over as the principle transport animals. On the other hand, reindeer herders use horses to ride to the village during the snow-free seasons when reindeer cannot pull sledges. However, even the most 'Yakutian-

[5] However, it seems possible that in marriages between Yakuts and Eveny, live reindeer and horses were exchanged, which may have been documented in archival sources, but more research would be needed to clarify this.

ised' Eveny from the Starostiny clan (Ammosov 1997:158) had very few horses in use for the day-to-day herding and movement of households in their reindeer camps (Starostina, pers. comm. July 2008). The use of horses in day-to-day herding work reported by Maj (2008: 40) is still thought to be somewhat unusual, because only after the time of the Soviet Union did individual reindeer herding camps increasingly start to acquire horses as their own private property. However, as of 2008, this has, according to herding experts in Sakkyryr, radically changed the way of life in the camps: "Reindeer herders firmly started to sit on horses", says Raisa Dmitrievna Starostina. "They buy the horses, or they exchange one horse for four reindeer. Earlier no-one would have had the idea of migrating with horses." She is happy that it has become much easier to move the camp, and provide transport for children, relatives and guests who like to join the camps during their summer holidays, since horses can carry people and much more cargo than reindeer (Starostina, pers. comm. 2008). In this way the horses act as facilitators of social encounters between people, strengthening social cohesion within the reindeer herder community. Through the use of horses, their nomadic lifestyle becomes more popular and more accessible to sedentary relatives and friends. This importance of the horse for social encounters and cohesion is not, however, likely to change the self-identification with reindeer even of 'Yakutianised' Eveny. Reindeer remain the supreme animal for Eveny society and culture in the perception of the people. As for the Sakha, the winter hunt and checking of their horse herds would not be imaginable without reindeer anymore. As Ammosov (Tel. comm. May 2009) told me, they tried using horses for this purpose, but without success, as the snow sheep were scared away.

From this follows that the practical significance of animals varies not only over time, as argued, for example, in Nakamura's paper on Inner Mongolia (this volume), but also according to the seasons. The main argument here, however, is that the economic significance is subject to more rapid change than the socio-cultural, the former depending largely on forces beyond the herders' control – for example the changes caused by the end of the Soviet Union (Granberg, this volume) – while the latter is in the hands of the herders themselves. The Sakkyryr ethnography has shown that the ethnically mixed Eveny / Sakha population has been engaging in economic exchange involving animals for centuries, but the socially significant incorporation of horses into reindeer nomadism as a livelihood, enhancing community cohesion, began much more recently.

Significance and prestige The prestige of animal races is a good example of how the social significance of animals cuts across ethnic boundaries. The passion of Sakha for horse-races has been documented in many historical records (Gabyshev 1966), a remnant of their pre-northern past in Central Asia (Crate 2008:117) that links them culturally to the horse-riding cultures Nakamura describes in this volume. However, in the last ten years or so, there has been increasing interest and participation of Eveny in horse races (during July), as well as Sakha in reindeer races (in April). Being successful in such races gives the participants prestige in the community and with the local administration, as this author witnessed during the horse race in July 2008. Races fulfill several purposes for the participants: besides proving

themselves in the competition and striving to win the main prize, participants also demonstrate their expertise in working together with an animal in order to reach a goal (covering a given distance in a minimum time). Thus, public races are in the best case exhibited enactments of symbiotic domesticity. Moreover, the races are occasions where youngsters can be admired by girls; the races thus serve as meeting places, not to say marriage fairs, for people from remote hamlets or mountain valleys.

Two informants told me that they had taken up reindeer and cattle breeding, respectively, for economic reasons, while their real passion is horses, confirming what earlier scholars reported on the Sakha preoccupation with their horses: "It would hardly be exaggerated to say that the Yakuts have as much horse-blood in them as any Yakut horse itself" (Khudiakov 1869 [1960 ed.:229]). This statement made 140 years ago is confirmed in an impressive way when one day I am supposed to get a detailed introduction to the facilities of the Sakha state farm for preserving the genetically unique cattle breed. However, after ten minutes at the facilities, the local director invites me to wander off to watch the horse racers training. It turns out that he has worked in a horse herding brigade of the *sovkhoz* earlier, and he admits that this is where his real passion is, whereas the work with the cattle is what he does as a job to be able to spend more time with his young family and earn a stable income. With this approach he confirms the stereotypical preference of Sakha for horses (Maj 2008, Gabyshev 1966) that I also heard from other informants in town. The chairman of the award-winning team in the 2008 horse races could be observed full of passion and enthusiasm during the weeks before the race. Nonetheless, he permanently holds a herd of reindeer for his meat requirements, as well as trained transport reindeer. He gained his familiarity with reindeer during the past as a reindeer herder and from summer experiences in the mountains as a teenager (Maj 2008: 40; Lukin, pers comm., July 2008). Along similar lines, Raisa Dmitrievna Starostina, the 'Yakutianised' Eveny woman cited earlier who emphasized the increased significance of horses (see above), clearly indicated that her supreme animal is the reindeer, because she comes from a reindeer herding 'dynasty' (Starostina 2008, pers. comm.).

So in spite of diversity in the animal environment, people have clear attachments and preferences. Although 'Evenyness' is still more associated with reindeer herding, whereas horse- and cattle herding are thought to be the sphere of Sakha, this does not prevent anybody from having close relationships with any of these animals, which is in agreement with the position of Sasaki (1998). Although the political and symbolic significance of horses in the region is certainly dominant, cattle have increased in symbolic importance recently, empowered by government policies to protect the genetic heritage of Yakutian cattle (Granberg et al 2009, Stammler-Gossmann, this volume). However, the attention that cattle have got from social scientists in the past is the inverse of the African situation: a clear example of underestimation. Therefore, Crate's (2006, 2008) and Granberg's et al (2009) studies are important to correct this. The remaining gap in our understanding is, however, just as for the Nentsy, the relative significance of these animals for the people, which has not been focused on in previous studies. Maj (2008) has made a first valuable contribution in this direction by comparing the significance of all three animals in Eveno-Bytantay,

focusing on mobility and prestige, although her work compares horses more with reindeer than with cattle. She quotes informants as saying that sedentary cattle herding is dirty, smelly work that is clearly tedious and inferior to the free nomadic lifestyle of a Yakut horse herder (Maj 2008:43). The 'sedentariness' of the work therefore makes cattle a less prestigious animal.[6] This is mirrored by comments I heard at the horse race in Sakkyryr in 2008, after I offered *kumys* that I had bought at the race course to my hosts: "In the good years we always used to have real *kymys* from horse milk. Now, anyone call tell this *kumys* is weak. It's not even worth calling *kumys*, because it comes from cow milk, but still people do so, because you can't have a horse race without *kumys*." Thus, although *uurung as,* any 'white food' from the cow, enjoys high popularity among the Sakkyryr population and the Sakha in general, for this socially important event of the horse race, a drink made of fermented cow milk is clearly inferior to the 'real *kumys'*.

During my short stay in Sakkyryr I focused mainly on work with cattle and found that, indeed, cattle work is done by those who for some reason cannot engage in horse or reindeer herding. Consequently, cattle are more the sphere of pensioners, the unemployed and women. It is telling about the prestige of animals that there is a reindeer-festival (with races in April), a horse festival (with races in July), and the snow sheep (*chubuk*) is on the coat of arms of the region, but there is no special event or symbol associated with cattle. The social, cultural and symbolic importance of cattle is thus more in the individual and household-sphere than for the whole group or community, as may be seen, for example, in Virtanen's paper (this volume) or in classical African ethnographies.

This leads to a situation where the high significance of cattle for the economy, livelihood and society of Sakkyryr is in contrast to the comparably lower symbolic power of cattle for the whole community, even though Crate (2008) observed in a neighboring region a multiplicity of individual cow-related practices that she classified as sacred. Although caring for cattle is probably the most work-intensive of all three animal relationships, I heard from both horse and reindeer herders that cattle work is something for the lazy. For people more attached to horses, cattle therefore occupy more practical significance, as a source of milk products and meat (which are highly valued particularly when they come from aboriginal Sakha cattle). However, the prestige and preference for *uurung as* ('white food') is not matched by the prestige of producing such food. For Eveny reindeer milk products do not have the same high standing, but the few herders that I met said that they enjoy butter from cows very much.

One of the two richest families in Sakkyryr is a good example of the relative significance of cattle in the human-animal diversity: there are three active, independent siblings with their children, one mainly engaging in horse herding, controlling several hundred horses, one in business (trading), and one (the sister) in cattle in the village. They all live closely together, and their activities are so tightly integrated that they can be analyzed as a single socio-economic unit (or household). For the cattle, a separate peasant farm (Rus: KFKh) was established, but the horses and cattle

[6] Cf. Khazanov (1994: Chapter 1.8) who states that in central Asia the use of cattle is limited because of such constraints on mobility.

use some of the same pastures in summer. The family also has reindeer, which they give to a herding brigade for summer care, getting them back in winter, when they use them to check on their horses and for hunting. When the old man of the family talks about animals, he seems to be very happy that somebody is interested in cattle, too. He praises the adaptability of Sakha cattle and has precise plans how to use their natural traits more efficiently. He says that the natural grazing season can be extended by one to two months by moving the cattle in spring and autumn to some more distant pastures, where the microclimate is a bit more favorable. This increased mobility – he is convinced – will be good for the health of the cattle and will reduce the amount of hay that has to be prepared per year (1.5 tons under the current system). Soon he will retire from horse herding and will try this pattern. While talking about future plans, we sit at the table enjoying the freshest possible *körche*, whipped cream (made from milk from their own Sahka cows), with berries, or just plain with dry bread.

The setting of my encounter with Dmitrii Bochkarev and the essence of our talk show how important the place of cattle is in the integrated diverse animal livelihood of the Sakkyryr community, although cattle have the lowest prestige of the three pastoral domestic animals.

CONCLUSIONS FROM THE NENTSY-SAKKYRYR COMPARISON

Several insights from this comparison between the pastoralists of Sakkyryr and those of Yamal are worth noting:

- Cattle in Sakkyryr and fish in Yamal share some similar 'niche of significance', not in economic terms but rather in their social dimension. This is remarkable because the animals are so different, crossing the domestic/wild boundary as well as the small/large one. I have shown that socially significant activities are attached to both fish and cattle for those who for some reason cannot engage in mobile nomadic pastoralism (pensioners, single mothers, families with small children, the disabled, etc.). Both fish and cattle are seen as 'low mobility – low prestige', but they provide valued food. Also, both fish and cattle are actively exchanged among kin and friends and thus sustain the networks that have been identified as so crucial for survival (Crate 2006, 2008).
- A 'niche of significance' can be filled by wild and domestic animals, depending on a whole range of conditions including historical, economic, socio-cultural and ecological factors.
- Where there is only one pastoral domestic animal, e.g., the reindeer:
  a) the significance of that animal may unite the significance of both small and large stock for its owners. Its significance as both small stock and large stock in such cases depends on cultural preferences, the situation, and first and foremost day-to day practices between humans and animals, and the extent to which domesticity acquires the symbiotic characteristics that I have outlined above;
  b) some of the significance of small stock in societies with a single pastoral animal species is likely to be occupied by fished or hunted animals.

- Animal exchange both within and across species, has an important social and economic function in pastoralist societies, not only those with classical multi-specialized herds but also among herders of domestic reindeer. In the case of reindeer herders animal exchange and 'conversion' across animal species can cross the border between the wild and the domestic.
- Symbiotic domesticity is one of the distinctive features of a human-animal partnership involving individual persons on both sides, as well as communities of humans and animals (herds). This kind of partnership is only possible with domestic animals. With wild ones, the relationship remains at the generic species level and with the spiritual masters of the game. Thus, while the niche of significance of cattle among the Sakkyryr people may be partially compared with the niche of significance of fish among the Nentsy, this significance is different from and independent of the level of symbiotic domesticity between particular people and particular animals that can exist only with domestic animals that are in close contact with people.
- The prestige of different animals is attached to mobility, with more mobile animal husbandry being considered more prestigious. In both the Nenets and Sakkyryr societies, this suggests that nomadic pastoralism has good potential to serve as a means of survival in a culturally distinct way in a harsh environment in the future.

Crate's (2008:124) article about Sakha cow knowledge contains a short comparative section on the Yamal Nenets situation, too, arguing that they have a similar "model of cultural integrity in their human-animal relations", drawing mostly on conceptual analogies in sacred knowledge among the two groups. In Crate's analysis all culturally embedded practices seem to be classified as sacred, and the application of such practices distinguishes successful from unsuccessful households (Crate 2008:125). The experiences of this author in both fields point to alternative interpretations: numerous practices of engagement with animals, especially training, seem to be part of everyday practices, where it is not the sacredness of the practice that matters but the respectful approach of the human to the animal that generally distinguishes successful herders from unsuccessful ones.

Crate does not define what she means by cultural integrity, but it is clear that for her sacred practices are one, if not, the crucial component. For both Sakha and Nenets, she argues that these practices have been preserved because of cultural integrity. Logically, this means that cultural integrity, described as the presence of sacred practices, is the reason for preserving these very sacred practices. This seems to be a circular line of argumentation without logical linear progression. I have discussed elsewhere (Stammler 2005) how the study of the Nentsy by Golovnev and Osherenko (1999) quoted by Crate falls into the same argumentation, where culture as a non-defined but single most powerful concept inhibits further detailed academic explanation of why certain practices remain meaningful over time while others do not. Crate's idea of the link between sacred knowledge and cultural integrity can only be understood through a co-evolutionary approach, where changes in one variable affect changes in the other, which in turn affects changes in the first.

Lastly, both the Sakkyryr and the Nenets ethnographies show how people have not only a very close but also a reciprocal partnership through daily engagement with their pastoral animals, be they reindeer, cows, or horses. This encourages us to rethink Ingold's (2000: 75) distinction that the relationship of hunter-gatherers to their animals is one of trust, whereas among pastoralists it is one of domination. Although Crate (2008: 126) seems to agree with Ingold, she herself presents contradictory evidence from Viliui Sakha cattle herders that is more in line with the reciprocal trustful partnership relations that I have tried to show through the ethnography of the Nenets and Sakkyryr pastoralists. Not only does this relationship make sense for both partners' physical subsistence, but it clearly has social and individual emotional properties that go well beyond domination and control and are a matter of the mutually significant shaping of each other's characters and personalities.

DISCUSSION

The goal of this paper is to revisit the significance of animals in the Arctic in order to incorporate this large area into theoretical understandings of human-animal relationships in pastoralism. By comparing in two different Arctic societies the three topics of a) 'closeness' between human and their animals (symbiotic domesticity), b) animal diversity, and c) the relative social positions of animals in hierarchies of prestige, I propose a framework by which animal significance might be compared across regional and other boundaries. The literature studies and ethnographic evidence from the two cases in Siberia allow us to argue for the presence of what I call niches of significance in the pastoral society, which can be filled by different animals at different times.

The fact that the niches of significance can cross the border between wild and domestic animals confirms Layton's (et al 1991) argument that hunting-gathering and pastoralism are two parts of a multiple mode of people relating to their environment. In hunter-gatherer and pastoralist societies, the human-environment relationship is mediated largely through animals. We should not treat these two livelihoods as mutually exclusive and diametrically opposed, as they sometimes appear in Ingold's work (2000: 61–76). On the other hand, the fact that there are points of similarity between the two livelihoods should not be used to negate the difference between domestic and wild animals completely, as enacting closeness with live animals involves a different way of knowing the land from a hunter-gatherer setting, where people do not protect animals.

I argue that in any pastoral society there is a need for diversification in order to spread risk and make better use of scarce resources, but we can conceive of that diversification more broadly than just in domestic pastoral animal species. Diversification can include fish and game as well as activities not immediately connected with a human-animal relationship, e.g., wage labor on an oil field. Also in any pastoral society there are animals occupying the 'low prestige' niche of significance. They are more likely to be animals that require less mobility and are less work-intensive and reproduce quickly, so that a herd can rapidly be built up through upwards conversion.

In this case the high significance but low prestige of fish for the Nentsy and other

reindeer-related groups (Argounova-Low 2009:485) is more typical than the comparably low prestige that cattle work has among the people in Sakkyryr. Even though work with cows or fish may be more tedious and time-consuming than a nomadic life with reindeer or horses, such work is perceived as suitable mostly for those who are emically classified as weaker members of the society. The fact that a large stock domestic animal like cattle can occupy such a non-prestigious niche is interesting in itself and might be hard to imagine, e.g., in an East African setting. I therefore warn against reifying the differences between small stock and large stock in themselves without considering the relative significance of the animals in the society.

The usefulness of monospecialised versus multispecialized pastoralist livelihoods as a concept is therefore doubtful, because it works only when all non-domestic animal relationships are omitted from the analysis. Khazanov (1994), as well as Layton et al (1991), have shown for pastoralists and hunter-gatherers that no-one relies on one animal species alone for their survival. The incorporation of Arctic reindeer pastoralism in such an analysis of significance-diversity brings the benefit of realizing how wild resources can occupy the same position in society as particular domestic animals in settings where there is species diversity within the herd.

Along the same line I have stressed that animal conversion in different societies does not stop at the domestic/wild border and includes all animal resources. More often than not, products obtained from animals at the lower end of the ladder of prestige may be highly valued and extensively used, which shows that the low esteem associated with the animals is not connected to some inherent quality of the animals themselves, but rather to the limited amount of mobility that is needed to work with them.

Finally, I have shown how people with one or several domestic pastoral animals quickly adapt to the changing economic significance of the animals, which today depends more than ever on external factors beyond the herders' control. They also change their day-to day occupation with animals throughout their biography, switching across animal species in their main occupation (both domestic and wild/fish). However, the cultural attachment and prestige of the principal animal in the society remains more stable in most cases. Although there is evidence of people switching the supreme animal with which they identify – as with, for example, the Eveny milker – such cases can still be regarded as exceptions rather than the rule. The principal animal for identification and prestige is influenced by ethno-historical traditions. In this way research from the Arctic is in line with other evidence from Africa, South America (Browman 1974, Dransart 2002), and Central Asia (Miller 1998, Nakamura, this volume).

In a time of increased rationalization, mechanization, and anonymization of animal husbandry worldwide (Reinert 2007, Beach 1981, Ingold 1980), it is important to go beyond economic determinism in the analysis: in all pastoral nomadic settings people's husbandry decisions concerning the herd composition within and across species in principle go beyond economic-ecological reasoning. The social significance of animals and intimate relationships with humans that have evolved over centuries, if not millennia, shape pastoralists' role as human agents in the environment.

SUMMARY AND CONCLUSION

This paper began with a list of four focal points in the introduction, which I sought to elaborate with theoretical and ethnographic evidence throughout the paper, leading to the following four conclusions:

1. Symbiotic domesticity as the daily enacted closeness between humans and animals shapes human and animal persons in pastoralism, as well as the human perception of the environment. With which kind of animal such domesticity is enacted is a matter of choice, by the society as well as by the individual, which goes beyond ecological, economic or political reasoning.
2. The examples from the Arctic have shown that small and large, wild and domestic animals can occupy similar 'niches of significance'. The choice of the animal depends on social, cultural, historical, economic and ecological factors, as well as the personal preferences of the agents.
3. The importance of a particular animal species for a society – for example, for exchange, prestige or mobility – can only be understood through a thorough analysis of its relative position in the animal-diversity on which that given society relies for its survival.
4. The Arctic deserves to be included in the analysis of human-animal relationships in pastoralism to a much greater extent than it has heretofore, as Arctic exceptionalism due to a supposed 'monospecialised' setting with reindeer does not hold empirically.

The discussion of the above-mentioned ethnographic case studies from two pastoralist groups in Siberia revealed that the social significance of animals in the Arctic is as complex a topic as in other more classical pastoralist areas such as Central Asia, in spite of Arctic exceptionalism in social science scholarship. The Arctic situation can serve as an illustrative case for the point that in societies that have only one pastoral animal species as a partner, niches of social significance can also be occupied by wild animals or fish. This supports the argument of Takakura (this volume) that the hunter-herder continuum is a useful analytical concept with potential beyond the Arctic region. A theory of species diversification strategies and niches of significance of animals can therefore include both wild and domestic animals. On the other hand, I have also shown how the constitutive role of live and individual animals for humans is enacted in symbiotic domesticity with domestic animals. Therefore, the domestic animal sphere is fundamentally different from the wild one for our analysis of partner relationships that shape the personhood of human beings and animals. Since pastoralists perceive the environment mainly through this partnership with animals, we can conclude that the social significance of animals is at the heart of their relationship with the environment as a total social phenomenon (see Introduction, this volume). As a consequence, different niches of animal significance are linked to perceiving and knowing different aspects in the environment.

I have qualified the strong symbolic link between particular animal 'keystone' species and particular human communities as possibly exaggerated and stereotypi-

cal: the Nentsy are generally seen as typical reindeer people in spite of the importance of fish for their diet and for the sustenance of their social and economic networks. The same is true for the Sakkyryr Eveny as reindeer people in spite of their use of horses and participation in horse-related activities. The Sakha are generally considered to be horse people in spite of their elaborate cattle-related practices and the significant position of reindeer among some Sakha territorial groups such as in Sakkyryr or Yessei (Argounova-Low 2009). I argue that these key associations with particular animal species can only be understood when historical data and ethnogenesis is part of the analysis. This leads to the conclusion that it is the social significance of animals that is the most stable aspect in the human-animal relationship, and it is the one component where the pastoralist group has fullest agency. The economic, political and ecological significance of the animals for the people may change quickly and is often beyond their immediate control, depending on outside influences such as markets, ideologies, and changes in their habitat. By describing processes of enacting and maintaining symbiotic domesticity, I have shown that animals are not only significant others for humans with whom humans learn who they themselves are, but the agency of both humans and animals is relevant for an understanding of the partnership of beings inhabiting a given total social environment.

ACKNOWLEDGEMENTS

This paper could not have been written without the continuous support of friends and informants in Yamal and Sakkyryr. The author's involvement in the ESF BOREAS research programme proved extremely beneficial for sharpening the paper's theoretical and conceptual profile. Thanks are also due to Tea Virtanen for her constructive comments and to Michael Hurd for not only proofreading but also giving useful comments on the final text.

REFERENCES

Sasaki, Granberg, Nakamura, Takakura, Vuojala-Magga, Manzullo, Osva, Kantanen, this volume

Aikio, S., Lehtola, T., Näkkäläjärvi, K. and Pennanen, J.
2002 Agriculture – a Sami livelihood as of the 1700s. In *Siiddastallan: From Lapp Communities to Modern Sami Life*, Publications of the Inari Sami Museum, vol 5, ed. J. Pennanen and K. Näkkäläjärvi, 54–59. Inari: Siida Sami Museum.

Ammosov, I. A.
1997 O yazykovoi situatsii Tyugasirskogo roda Evenov Verkhoian'ia [On the language situaion among the Tyugasir clan of the Verkhoian Eveny]. In *Occasional Papers on Changes in the Slavic-Eurasian World* 50, 154–159.

Argounova-Low, T.
2009 Black Food: Subsistence, Diet, and Exchange in Yessei Yakut Society. In *Ethnohistory* 56, 479–507.

Bakhrushin, S. V. and Tokarev, S. A. (ed.)
1953 *Iakutia v XVII Veke* [Yakutia in the 17th century] Yakutsk: Yakutskoe Knizhnoe Izdatel'stvo.

Beach, H. and Stammler, F.
2006 Human-Animal relations in pastoralism. In *People and Reindeer on the Move*, Special Issue of the journal *Nomadic Peoples,* No. 10,2, ed. F. Stammler and H. Beach, 5–29. Oxford: Berghahn.

Beach, H.
1981 *Reindeer-herd management in transition: the case of Tuorpon Saameby in Northern Sweden*. Uppsala Studies in Cultural Anthropology 3. Stockholm: Almqvist & Wiksell.
Bird-David, N.
1990 The giving environment: Another perspective on the economic system of gatherer-hunters. In *Current Anthropology*, Vol. 31,2, 189–196.
Blench, R.
1997 Neglected species, livelihoods and biodiversity in difficult areas: how should the public sector respond? In *Natural Resource Perspectives* 23:10pp. London: Overseas Development Institute. http://www.odi.org.uk/resources/download/2134.pdf (Accessed 8 May 2009).
2006 Pastoralism in the new millennium. Updated version of the 2001 FAO, Animal production and Health Paper 150. http://www.rogerblench.info/Development/Pastoralism%20monograph.pdf (Accessed 8 December 2009).
Broch-Due, V.
1990 Cattle are Companions, Goats are Gifts – Animals and People in Turkana Thought. In *From Water to World Making: African Models and Arid Lands*, ed. G. Palson, 40–58. Uppsala: Scandinavian Institute of African Studies.
Browman, D. L.
1974 Pastoral Nomadism in the Andes. In *Current Anthropology* 15, 188–196.
Comaroff, J. and Comaroff, J. L.
1991 ""How Beasts Lost Their Legs": Cattle in Tswana Economy and Soceiety, " in *Herders, Warrios, and Traders. Pastralism in Africa.* Edited by J. G. Galaty, Bonté, Pierre, 33–61. Boulder, San Francisco, Oxford: Westview Press.
Crate, S.
2003 Viliui Sakha Adaptation: A Subarctic Test of Netting's Smallholder Theory. In *Human Ecology*, vol 31(4), 499–528.
2006 Cows, *Kin and Globalization: An Ethnography of Sustainability.* Walnut Creek: Alta Mira Press.
2008 Walking Behind the Old Women: Sacrad Sakha Cow Knowledge in the 21st Century. In *Human Ecology Review* 15, 115–129.
Diamond, J.
2005 *Collapse: How Societies Choose to Fail or Survive.* New York: Viking books.
Dransart, P. Z.
2002 *Earth, water, fleece and fabric: an ethnography and archaeology of Andean camelid herding*. London, New York: Routledge.
Evans-Pritchard, E.
1940 *The Nuer. A description of the modes of livelihood and political institutions of a nilotic people.* Oxford: Clarendon Press.
1956 *Nuer Religion.* Oxford: Clarendon Press.
Gabyshev, F. M.
1966 *Yakutskoe Konevodstvo* [Yakut horse breeding]. Yakutsk: Yakutskoe Knizhnoe Izdatel'stvo.
Gogolev, A. I.
2005 Istoriia lakutii [History of Yakutia]. Yakutsk: YGU. http://www.rrc.ysu.ru/resource/network/doc71/2.htm (accessed 7 Dec 2009).
Golovnev, A.
1995 *Govoriashchie kul'tury* [Talking cultures]. Ekaterinburg: Ural Branch, Russian Academy of Sciences.
Golovnev, A. and Osherenko, G.
1999 *Siberian Survival: The Nenets and their Story*. Ithaca, London: Cornell University Press.
Granberg, L., Partanen, U. and Soini, K.
2006 Social transition in the eyes of Yakutian cattle. In *Proceedings of the international conference on*

world sustainable development outlook 2006 : global and local resources in achieving sustainable developmen, ed. A. Ahmed, 32–42. Geneve : Inderscience Enterprises.

Granberg, L., Kantanen, J. and Soini, K. (ed).

2009 *Sakha Ynaga – cattle of the Yakuts.*(Annales Academiae Scietiarum Fennicae. Humaniora, No. 355). Helsinki: Finnish Academy of Science and Letters.

Gray, P.

2006 'The last kulak' and other stories of post-privatization life in Chukotka's tundra. In *People and Reindeer on the Move*, Special Issue of the journal *Nomadic Peoples*, No. 10,2, ed. F. Stammler and H. Beach, 50–67. Oxford: Berghahn.

Heikkinen, H. I.

2007 Changing business strategies of reindeer husbandry in Finland. *International Journal of Business Performance Management (IJBPM)* 9, 3: 301–326.

Hutchinson, S.

1996 *Nuer Dilemmas: coping with money, war and the state*. Berkeley: University of California Press.

Ingold, T.

1980 *Hunters, Pastoralists and Ranchers: Reindeer Economies and their Transformations*. *Cambridge Studies in Social Anthropology*. Cambridge: Cambridge University Press.

1988 (editor) *What is an animal?* (One world Archaelology, Vol. 1.) London: Unwin Hyman.

2000 From trust to domination. An alternative history of human-animal relations. In *The perception of the environment: essays in livelihood, dwelling and skill*, ed. T. Ingold, 16–76. London and New York: Routledge.

2005 A manifesto for the Anthropology of the North. In *Connections: local and global aspects of arctic social systems: ICASS V: keynotes presented at the Fifth International Congress of Arctic Social Sciences, May 19–23, 2004*, ed. A. Sudkamp. Fairbanks: International Arctic Social Scientists Association.

Khazanov, A. M.

1994 *Nomads and the Outside World*, Second edition. Madison: University of Wisconsin Press.

Khomitch, L.W.

1995 *Nentsy: Otcherki traditionnoj kultury* [Nentsy: Essays on traditional culture]. St. Petersburg: Russkii Dvor.

Khudiakov, I. A.

1869 [1960] *Kratkoe Opisanie Verkhoianskogo Okruga* [Brief description of the Verkhoiansk district]. Leningrad: Nauka.

Layton, R., R. Foley and E. Williams.

1991 The Transition between Hunting and Gathering and the Specialised Husbandry of Resources. In *Current Anthropology* 32, 255–274.

Lévi-Strauss, C.

1963 *Totemism*, trans. Rodney Needham. Boston: Beacon.

Mauss, M.

1924 [1969] *The Gift: Forms and Functions of Exchange in Archaic Societies*, third corrected english edition. London: Cohen & West.

Maj, E.

2008 La vache sedentaire, le renne et le cheval nomades chez les Evenes et las Iakoutes des monts de Verkhihansk (Republique Sakha, Iakoutie) [The sedentary cattle, the "nomadic" reindeer and horse of the Evens and Yakuts in Verkhoyansk Mountains (Sakha Republic, Yakutia)]. In *Fondation Fyssen - Annales* 23, 36–48.

2009 The Horse of Sakha: Ethnic Symbol in Post-Communist Sakha Republic. In *Sibirica* vol. 8(1), 68–74. Oxford: Berghahn Journals.

Miller, D. J.

1998 Tibetan pastoralism: Hard times on the plateau. In *Chinabrief* 1(2), 17–22.

Mullin, M.
2002 Animals and Anthropology. In *Society & Animals* 10, 387–393.
Noske, B.
1993 The Animal Question in Anthropology: a Commentary. In *Society and Animals* 1(2), 185–190.
Reinert, H.
2007 The Pertinence of Sacrifice. Some Notes on Larry the Luckiest Lamb. *Borderlands e-journal* 6: online-publication
http://www.borderlands.net.au/vol6no3_2007/reinert_larry.htm (Accessed 8 Dec. 2009).
Riesman, P.
1977 *Freedom in Fulani Social Life.* Chicago: University of Chicago Press.
Sasaki, S.
1998 Segmentary Hierarchy of Identity: The Case of Yakuts and Evens in Northern Yakutia. In *Quest for Models of Coexistence: National and Ethnic Dimensions of Changes in the Slavic Eurasian World*, ed. K. Inoue and T. Uyama, 317–337. Sapporo: Slavic Research Center, Hokkaido University.
Stammler, F.
2005 *Reindeer Nomads Meet the Market: Culture, Property and Globalisation at the End of the Land* (Halle Studies in the Anthropology of Eurasia, Vol. 6.). Münster: Lit publishers.
Takakura, H.
2002 An institutionalized human-animal relationship and the aftermath: the reproductive process of horse-bands and husbandry in Northern Yakutia, Siberia. In *Human Ecology* 30, 1–19.
2004 Gathering and releasing animals: reindeer herd control activities of the indigenous peoples of Verkhoyansky region, Siberia. In *Bulletin of the National Museum of Ethnology of Japan*, vol 29(1), 43–70.
Tapper, R.
1988 Animality, humanity, morality, society. In *What is an animal?* One world archaeology, vol. 1, ed. T. Ingold, 47–62. London: Unwin Hyman.
Vialles, N.
1994 *Animal to edible*. Cambridge: Cambridge University Press.
Vitebsky, P.
2005 *Reindeer People. Living with Animals and Spirits in Siberia*. London: Harper Collins.
Willerslev, R.
2007 *Soul hunters: hunting, animism, and personhood among the Siberian Yukaghirs*. Berkeley, Los Angeles and London: University of California Press.
Wilson, E. O.
1997 *In search of nature*. London: Penguin books.
Yoshida, A.
1997 *Kul'tura Pitania Gydanskikh Nentsev (Interpretatsia i sotsial'naia adaptatsiia). Novye Issledovania po etnologii i antropologii* [The culture of eating (nutrition) among the Gydan Nentsy (Interpretation and social adaptations) in the Series: New research in ethnology and anthropology]. Moscow: Russian Academy of Sciences.
2005 Sovremennoe Olenevodstvo Tazovskikh Nentsev [Contemporary reindeer herding among the Taz Nentsy, in: Searching for oneself: Peoples of the North and Siberia during post-Soviet transformations]. In *V poiskakh sebia: Narody Severa i Sibiri v postsovetskikh transformatsiakh*, ed. E. A. Pivneva and D. A. Funk, 40–64. Moscow: Nauka.